Columbium:
fabrication, uranium alloys ... Aug 1080
*Complex Metallurgy by Cerro de Pasco ... Aug 1058
Concentrates:
Cerro de Pasco Peruvian operation ... Aug 1058
sintering at Extaca ... July 844
Conductivity:
acidity control, zinc electrolysis ... Nov 1542
Control:
instruments, bessemer steelmaking ... June 764
Consolidated Mining & Smelting Co.
smoke control ... Nov 1536
Converters:
added, Magma Copper Co. ... Oct 1461
Cerro de Pasco Peruvian operation ... Aug 1059
control instruments for bessemer ... June 764
copper, nickel production ... Aug 1073
history, bessemer process ... June 744
oxygen plants, U. S. ... June 762
Copper:
anodes for refinery ... Feb 234
demand at Magma Copper Co. ... Oct 1461
refractories for production ... Aug 1070
Corrosion:
resistance of Zircaloy-2 for reactors ... May 640
Cost:
fabricating titanium ... Jan 30
Crushing:
ore preparation, Steel Co. of Wales ... July 832
*Cyclical *Movement of Steel Scrap Prices* ... Dec 1651
Czechoslovakia, Krupp-Renn process ... July 849

D

Daly, F. V., et al.: *First Zirconium Vessel for HRT Reactor ... May 648
Dasher, J., Schuhmann, R., Jr., and Gaudin, A. M.: *South Africa: Extraction Process for Gold-Uranium Ores ... Aug 1065
Decarburization:
use of oxygen jets in open hearth ... Apr 418
Dedinas, J. A., et al.: *Industry Learns From a Turbine Spindle Failure ... Mar 317
Degassing:
steel, vacuum ... Apr 420
de la Breteque, P.: *Gallium Recovery from Bauxite ... Nov 1528
Design:
fuel element ... May 651
*Desiliconized Pig Iron for the Electric Furnace; a Possibility ... Dec 1645
Desulfurization:
of molten iron ... Apr 425
*Desulfurization of Molten Iron ... Apr 425
*Development of the Dwight-Lloyd Sintering Process ... July 828
Dittrich, W. E.: *Review of Industry-Wide Blooming and Slabbing Mill Practices ... Sep 1147
Doig, J. R., et al: *Beta-Omega Age Hardening Means Stronger Zirconium Alloys ... Nov 1544
Drift:
Jan 8, Feb 231, Mar 313, Apr 389, May 634, Jun 728, Jul 827, Aug 1054, Sept 1145, Oct 1442, Nov 1525, Dec 635
Durst, G.: *A New Development in Metal Cladding ... Mar 328
Dwight-Lloyd process:
development of ... July 828
Luxembourg, Lorraine ore fines ... July 851
new laboratory ... July 843
Dust:
electric furnace ... Dec 1658
recovery, Cominco ... Nov 1536
*Dust and Fume Control in a Small Melting Shop ... Dec 1658

E

Economic Commission for Europe:
constant humidity blast furnaces, USSR ... Sep 1159
Krupp-Renn process, Czechoslovakia ... July 849
L-D process, steelmaking in Austria ... June 760
lignite coke, blast furnaces ... Sep 1160
Economics:
aluminum production ... Nov 1526
copper refinery ... Feb 234
depreciation, pricing policy for steel plants ... Mar 338
desiliconized pig iron, electric furnace ... Dec 1645
education costs ... Nov 1533
sponge, H-iron, electric furnace charging ... Dec 1642
steel scrap prices ... Dec 1651
titanium industry ... Jan 21
Education:
costs ... Nov 1533
engineering enrollment ... July 827
*Effect of Melting and Casting Atmospheres on Cast Nickel Alloys ... Oct 1450
*Effect of Nuclear Radiation on Structural Materials ... May 665
Elder, G. E., et al: *First Zirconium Vessel for HRT Reactor ... May 648
Electric Furnaces:
alumina ladle lining ... Dec 1646
charging, sponge and H-iron ... Dec 1642
copper production ... Aug 1073
desiliconized pig iron ... Dec 1645
dust, fume control ... Dec 1658
experimentation ... Aug 1057
first half-century ... Dec 1637
hot tearing ... Dec 1654
pig iron smelting, Norway ... Oct 1464
production electrolytic titanium ... Sep 1162
steel scrap prices ... Dec 1651
zircon in ... Dec 1649
zircon ladle linings ... Dec 1648
Electrical systems:
anodes, Mufulira ... Feb 245
tankhouse refinery ... Feb 254
*Electrolytic Titanium ... Sep 1162
Electrolysis:
acidity control, zinc ... Nov 1542
electrolytic titanium ... Sep 1162
gallium recovery from bauxite ... Nov 1528
plant design, refinery ... Feb 234
Emmett, W. D., and Zang, V. E.: *Zircon Ladle Linings for Cleaner, Low Cost Metal ... Dec 1648
*Engineering Enrollment ... July 827
Erie Mining Co., beneficiation plant ... Nov 1546
Europe:
basic refractories, in open hearths ... Apr 443
coal, steel community ... Oct 1458
lignite coke, blast furnaces, Eastern Germany ... Sep 1160
Luxembourg, Lorraine iron ore ... July 850
Norwegian electric pig iron smelting ... Oct 1464
Steel Co. of Wales ... July 832
USSR, blast furnaces ... Sep 1159
USSR, self-fluxing agglomerates ... July 852
Extaca, sintering iron ores, concentrates ... July 844
Extractive metallurgy:
Au-U ores, South Africa ... Aug 1065
Cerro de Pasco Peruvian operation ... Aug 1058
gallium recovery ... Nov 1528

F

Fabrication:
binary uranium alloys ... Aug 1076
cast nickel alloys ... Oct 1450
ceramic unit, reactors ... May 661
high temperature nickel-base alloys ... Oct 1446
titanium symposium ... Jan 24
use of titanium ... Jan 30
welding of zirconium and hafnium ... May 646
zirconium vessel for HRT reactor ... May 648
Finance, see Costs, Economics.
*Financing Tomorrow's Steel Plant Demands Realistic Depreciation and Pricing Policy ... Mar 338
Finki, C. W.: *Small Melting Shop; Dust and Fume Control ... Dec 1658
*First Half-Century of Electric Furnace Steelmaking in America ... Dec 1637
*First-Hand Report on Use of Basic Refractories in European Open Hearth Practice ... Apr 443
*First Zirconium Vessel for HRT Reactor ... May 648
Flaking:
effect of hydrogen in steel ... Apr 430
Fleck, R. G., and Hamilton, F. M.: *J&L's Star Lake Sinter Strand ... July 838
Flinn, R. A., and Hammond, C. M.: *Effect of Melting and Casting Atmospheres on Cast Nickel Alloys ... Oct 1450
Flow sheets:
tankhouse, Mufulira ... Feb 427
Forging:
turbine spindle failure ... Mar 317
Forscher, F., and Thomas, D. E.: *Properties of Zircaloy-2 ... May 640
Foster, E. S., Lorenz, F. R., and Haynes, W. B.: *Melting and Fabricating Binary Uranium Alloys ... Aug 1076
Fracture:
effect of hydrogen in steel ... Apr 430
Frost, P. D.: *Background for Practical Heat Treatment of Various Titanium Alloy Types ... Jan 35
Frost, P. D., et al.: *Beta-Omega Age Hardening Means Stronger Zirconium Alloys ... Nov 1544
Fuel:
ceramic, for nuclear reactors ... May 660
rates in blast furnace ... Apr 432
*Fuel Element Design ... May 651
Furnaces:
electrolytic refinery ... Feb 236
melting, fabricating binary uranium alloys ... Aug 1076
refractories for aluminum, copper production ... Aug 1070
Furnaces, see also Electric, Blast, Open Hearth.
*Future Trends in the Pneumatic Process ... June 763
*Future Use Pattern for Titanium ... Jan 42

G

*Gallium Recovery from Bauxite ... Nov 1528
Garrett, J. H.: *Status of Titanium Fabrication and Use ... Jan 30
Gases:
smoke control ... Nov 1536
Gaudin, A. M., Schuhmann, R., Jr., and Dasher, J.: *South Africa: Extraction Process for Gold-Uranium Ores ... Aug 1065
Gold:
extraction, Au-U ores ... Aug 1065
Griffen, J.: *How High Grade Iron Ores and Agglomerates Will Affect Coke Rates ... Apr 439
Grytting, O. A., and Colling, F. C.: *A New Approach in Electric Pig Iron Smelting ... Oct 1464

H

Hafnium:
production by Carborundum Metals Co. ... Mar 334
inert, atmosphere welding ... May 646
Hagen, R. E., Mielke, M. V., and Bennett, R. L.: *Sintering Iron Ores and Concentrates at Extaca ... July 844
Hamilton, F. M., and Fleck, R. G.: *J&L's Star Lake Sinter Strand ... July 838
Hanley, E. J.: *Financing Tomorrow's Steel Plant Demands Realistic Depreciation and Pricing Policy ... Mar 338
Hammond, C. M., and Flinn, R. A.: *Effect of Melting and Casting Atmospheres on Cast Nickel Alloys ... Oct 1420
Hardening, hardness:
heat treatment, titanium alloys ... Jan 36
quenching, heat transfer problem ... Aug 1074
zirconium, β-ω age ... Nov 1544
Haynes, A. A., et al.: *Mufulira Electrolytic Copper Refinery ... Feb 234
Haynes, W. B., Foster, E. S., and Lorenz, F. R.: *Melting and Fabricating Binary Uranium Alloys ... Aug 1076
Healey, G. N., et al.: *Mufulira Electrolytic Copper Refinery ... Feb 234
Healy, G. W., and Hilty, D. C.: *Oxygen Blowing Rate in Stainless Steel Melting ... Mar 325
Heat, heat treatment:
effect on properties, Zircaloy-2 ... May 644
quenching, transfer problem ... Aug 1074
titanium alloys ... Jan 35
titanium symposium ... Jan 23
Heroult, P., development electric furnace ... Dec 1637
*High Alumina Ladle Linings ... Dec 1646
*High Cost of Thinking ... Nov 1533
*Higher Rolling Mill Output Stirs Inquiry into Ingot Thickness ... Nov 1541
Hilty, D. C., and Healy, G. W.: *Oxygen Blowing Rate in Stainless Steel Melting ... Mar 325
History:
bessemer, steelmaking ... June 742
electric furnace steelmaking ... Dec 1637
Hood, J. E.: *Carbon Removal with Roof Mounted Oxygen Jets in Open Hearth Furnaces ... Apr 418
Hornak, J. N., and Whittenberger, E. J.: *The Desulfurization of Molten Iron ... Apr 425
Hoskins, C.: *Cyclical Movement of Steel Scrap Prices ... Dec 1651
*Hot Tearing in Electric Furnace Steelmaking ... Dec 1654
Howard, V. J.: *High Alumina Ladle Linings ... Dec 1646
*How High Grade Iron Ores and Agglomerates Will Affect Coke Rates ... Apr 439
Hydrogen:
effects in steel ... Apr 430
lack of a cause of turbine failure ... Mar 317
pickup, Zircaloy-2 ... May 644
Hydrometallurgy:
extraction, Au-U ores ... Aug 1065

I

Ihrig, H. K., et al.: *Industry Learns from a Turbine Spindle Failure ... Mar 317
*Industry Learns From a Turbine Spindle Failure ... Mar 317
*Inert Atmosphere Welding of Zirconium and Hafnium ... May 646
Ingots:
electric furnace charging ... Dec 1642
thickness, inquiry ... Nov 1541
Instrumentation:
control, bessemer steelmaking ... June 764
oxygen analyzer ... Oct 1457
Ions, ion exchange:
uranium extraction ... Aug 1068
Iron:
agglomeration, Luxembourg, Lorraine ore ... July 850
desiliconized electric furnace ... Dec 1645
desulfurization of molten ... Apr 425
Dwight-Lloyd sintering ... July 828
effect of ores on coke rates ... Apr 439
Krupp-Renn process ... July 849
ore preparation, Steel Co. of Wales ... July 836
sintering at Extaca ... July 844
smelting, Norway ... Oct 1464
sponge, H, electric furnace ... Dec 1642
*Iron Agglomerates from the Marquette Range ... Nov 1546

J

*J&L's Star Lake Sinter Strand ... July 838
Johnson, J. R.: *Ceramic Fuel Materials for Nuclear Reactors ... May 660
Jones & Laughlin Steel Co.:
oxygen converter plant ... June 762
Star Lake sinter strand ... July 838

K

Kaiser Steel Corp., oxygen converter plants ... June 762
Kasberg, A. H., et al.: *Inert Atmosphere Welding of Zirconium and Hafnium ... May 646
Kellogg, H. H.: *Titanium Symposium—Keynote Address ... Jan 21
Koppi, W. A.: *Zircon Ladle Linings . . . In Basic Electric Furnace Practice ... Dec 1649
Kosmider, H., and Coheur, P.: *On the Basic Pneumatic Processes of Steelmaking ... June 754
*Krupp-Renn Process in Czechoslovakia ... July 849

L

Ladles:
alumina linings ... Dec 1646

zircon in electric furnaces ... Dec 1649
zircon linings ... Dec 1648
Larsen, B. M.: *Small Melting Furnace Simulates Industrial Conditions ... Aug 1057
*L-D Process in Austria ... June 760
Lead:
Cerro de Pasco Peruvian operation ... Aug 1060
smoke control, Cominco ... Nov 1536
Leeds & Northrup Co., oxygen analyzer ... Oct 1457
Leroy, P.: *New Control Instruments for Bessemer Steelmaking ... June 764
*Lignite Coke in Low-Shaft Blast Furnaces ... Sep 1160
Lochen, H. E., et al.: *Industry Learns From a Turbine Spindle Failure ... Mar 317
Lorenz, F. R., Haynes, W. B., and Foster, E. S.: *Melting and Fabricating Binary Uranium Alloys ... Aug 1076
Lorraine iron ore fines ... July 850
*Low Fuel Rates with Coke-Anthracite Mixtures in 3-Ft Blast Furnace ... Apr 432
Luxembourg iron ore fines ... July 850

M

Magma Copper Co., copper demand ... Oct 1461
*Magnetic Analyzer Gives Better O_2 Samples from Open Hearths ... Oct 1457
Marquette range, iron agglomerates ... Nov 1546
Massachusetts Institute of Technology, extraction process, Au-U ores ... Aug 1065
Materials handling:
agglomeration, iron ore fines ... July 850
ceramic fuel, nuclear reactors ... May 660
construction, reactors ... May 665
J&L's Star Lake sinter strand ... July 838
Krupp-Renn process ... July 849
Mufulira refinery ... Feb 254
ore preparation, Steel Co. of Wales ... July 832
self-fluxing agglomerates, USSR ... July 852
sintering at Extaca ... July 844
Weirton's new sintering plant ... July 840
Matters, R. G., et al.: *Industry Learns From a Turbine Spindle Failure ... Mar 317
Matuschka, B.: *The L-D Process in Austria ... June 760
McPherson, D. J.: *Present Status of Titanium Development ... Jan 23
Mechanical properties:
pneumatic processes, steel ... June 759
Zircaloy-2 ... May 640
Mechanical properties, see also Properties.
Mechanical working:
blooming, slabbing mill practices ... Sep 1147
*Meeting Increased Copper Demand at Magma ... Oct 1461
*Melting and Fabricating Binary Uranium Alloys ... Aug 1076
Mesick, B. S.: *The Future Use Pattern for Titanium ... Jan 42
Metallurgy, metals:
Cerro de Pasco Peruvian operation ... Aug 1058
production of uranium ... May 637
Microstructure:
cast nickel alloys ... Oct 1453
nickel-base alloys ... Oct 1449
Mielke, M. V., Bennett, R. L., and Hagen, R. E.: *Sintering Iron Ores and Concentrates at Extaca ... July 844
Miller, E. C., et al.: *First Zirconium Vessel for HRT Reactor ... May 648
Molybdenum:
fabrication, uranium alloys ... Aug 1079
Morrison, C. Q., and Stephens, W. W.: *Zr and Hf Production Tailored to Yield Three Products. The Carborundum Metals Co. ... Mar 334
Mote, M. W., et al.: *Beta-Omega Age Hardening Means Stronger Zirconium Alloys ... Nov 1544
*Mufulira Electrolytic Copper Refinery ... Feb 234

N

National Steel Co., new sintering plant ... July 840
*New Agglomeration Laboratory ... July 843
*New Approach in Electric Pig Iron Smelting ... Oct 1464
*New Approach to Hot Tearing ... Dec 1654
*New Control Instruments for Bessemer Steelmaking ... June 764
*New Development in Metal Cladding ... Mar 328
Nickel:
base alloys, high temperature ... Oct 1445
cast, alloys ... Oct 1450
converters, refractories ... Aug 1073
Noe, E. S., Arnold, D. S., and Poison, C. E.: *Production of Uranium Metal ... May 637
Northern Rhodesia, Mufulira copper refinery ... Feb 234
Norway, electric pig iron smelting ... Oct 1464
Nuclear metallurgy:
ceramic fuel materials ... May 660
fuel element design ... May 651
production of uranium ... May 637
properties of Zircaloy-2 ... May 640
radiation effects ... May 665
welding of zirconium, hafnium ... May 648
zirconium, hafnium production ... Mar 334
zirconium vessel for HRT reactor ... May 648

O

*One Hundred Years of Bessemer Steelmaking ... June 742
*On the Basic Pneumatic Processes of Steelmaking ... June 754
Open hearth furnaces:
basic pneumatic processes ... June 758
bessemer steelmaking, 100 years ... June 742
carbon removal with oxygen jets ... Apr 418
desulfurization of molten iron ... Apr 425
European, basic refractories in ... Apr 443
experimentation ... Aug 1057
oxygen analyzer ... Oct 1457
*Ore Preparation Plant of The Steel Co. of Wales Ltd. ... July 832
OV process:
future trends ... June 763
Oxides:
electrolysis of titanium ... Sep 1162
Oxygen:
analyzer, open hearths ... Oct 1457
blowing rates ... Mar 325
*Oxygen Blowing Rate in Stainless Steel Melting ... Mar 325
Oxygen steelmaking:
basic pneumatic processes ... June 754
carbon removal ... Apr 418
L-D process in Austria ... June 760
trends, pneumatic process ... June 763
U. S. plants ... June 762

P

Paquet, J.: *Agglomeration of Luxembourg and Lorraine Iron Ore Fines ... July 850
Paschkis, V., and Stolz, G., Jr.: *Quenching as a Heat Transfer Problem ... Aug 1074
*Past, Present, and Future of High Temperature Nickel-Base Alloys ... Oct 1445
Peru, Cerro de Pasco operation ... Aug 1058
Physical properties:
metals under irradiation ... May 667
Physical properties, see also Properties.
Plank, W. B.: *Engineering Enrollment ... July 827
Plant design:
electrolytic copper refining, Mufulira ... Feb 234
iron agglomeration, Marquette Range ... Nov 1546
new laboratories ... Nov 1530
Pneumatic processes:
basic methods, steelmaking ... June 754
future trends ... June 763
Poison, C. E., Noe, E. S., and Arnold, D. S.: *Production of Uranium Metal ... May 637
Porosity:
effect of hydrogen in steel ... Apr 430
Powder metallurgy:
ceramic fuel materials, nuclear reactors ... May 660
development in metal cladding ... Mar 328
Power:
limitations, fuel elements, reactors ... May 653
Precipitation:
uranium extraction ... Aug 1067
*Present Status of Titanium Development ... Jan 23
Production:
aluminum consumption ... Nov 1526
rolling mill output ... Nov 1541
trends, electric furnace steelmaking ... Dec 1641
uranium metal ... May 637
vacuum steel degassing ... Apr 420
*Production of Uranium Metal ... May 637
*Production-Scale Vacuum Steel Degassing ... Apr 420
Properties:
annealed titanium alloys ... Jan 44
cast nickel alloys ... Oct 1450
fissile materials, reactors ... May 655
nickel-base alloys ... Oct 1447
refractories for aluminum, copper production ... Aug 1070
structural, in irradiated metals ... May 665
Properties, see also Mechanical, Physical.
*Properties of Zircaloy-2 ... May 640
Pumping:
tankhouse operations ... Feb 239

Q

*Quenching as a Heat Transfer Problem ... Aug 1074

R

Radiation:
damage, nuclear reactors ... May 657
effect, ceramic materials ... May 661
nuclear, on structural materials ... May 665
Reactors:
ceramic fuel materials ... May 660
fuel element design ... May 651
production of uranium metals ... May 637
Zircaloy-2 for ... May 640
zirconium vessel for HRT ... May 648
Refining:
Cerro de Pasco Peruvian operation ... Aug 1059
Mufulira tankhouse ... Feb 239
Refractories:
alumina ladle linings ... Dec 1646
basic, European open hearths ... Apr 443
zircon in electric furnaces ... Dec 1649
zircon ladle linings ... Dec 1648
*Refractories for Aluminum and Copper Production ... Aug 1070
Reporter:
Jan. 11, Feb 233, Mar 315, Apr 385, May 633, Jun 737, 825, Aug 1049, Sep 1139, Oct 1433, Nov 1511, Dec 1621
Research:
new laboratories ... Nov 1530
Reserve Mining Co., beneficiation plant ... Nov 1546
Reverberatories:
capacity increased, Magma Copper Co. ... Oct 1461
*Review of Industry-Wide Blooming and Slabbing Mill Practices ... Sep 1147
*Review of the Effects of Hydrogen in Steel ... Apr 430
Robinson, H. A., et al.: *Beta-Omega Age Hardening Means Stronger Zirconium Alloys ... Nov 1544
Rochow, W. F., and Brashares, C. A.: *Refractories for Aluminum and Copper Production ... Aug 1070
Rolling, rolling mills:
blooming, slabbing practices ... Sep 1147
ingot thickness ... Nov 1541
Sendzimir cold strip mill ... Sep 1154
Rowe, G. E., et al.: *Mufulira Electrolytic Copper Refinery ... Feb 234
Rowen, H. E.: *Development of the Dwight-Lloyd Sintering Process ... July 828
Royer, M. B., and Buehl, R. C.: *Low Fuel Rates with Coke-Anthracite Mixtures in 3-Ft Blast Furnace ... Apr 432

S

Schwartz, C. M., et al.: *Beta-Omega Age Hardening Means Stronger Zirconium Alloys ... Nov 1544
Schuhmann, R., Jr., Dasher, J., and Gaudin, A. M.: *South Africa: Extraction Process for Gold-Uranium Ores ... Aug 1065
Scrap:
electric furnace charging ... Dec 1642
European coal, steel community ... Oct 1459
prices ... Dec 1651
*Second and Third Oxygen Converter Plants in U. S. Under Construction ... June 762
*Self-Fluxing Agglomerates in the USSR ... July 852
*Sendzimir Cold Strip Mill, The ... Sep 1154
Sendzimir, M. G.: *The Sendzimir Cold Strip Mill ... Sep 1154
Sharp, K. C., and Tufnail, H. R.: *Ore Preparation Plant of The Steel Co. of Wales Ltd. ... July 832
Sibert, M. E., and Steinberg, M. A.: *Electrolytic Titanium ... Sep 1162
Silicon:
fabrication, uranium alloys ... Aug 1080
pig iron ... Dec 1645
Silver:
Cerro de Pasco Peruvian operation ... Aug 1061
Sintering:
at Steel Co. of Wales ... July 833
development, Dwight-Lloyd ... July 828
fuel rates in blast furnace ... Apr 434
J&L's Star Lake strand ... July 838
new Dwight-Lloyd laboratory ... July 843
new Weirton plant ... July 840
*Sintering Iron Ores and Concentrates at Extaca ... July 844
Slabbing:
mill practices ... Sep 1147
Slabbing, see also Mechanical working.
Slags:
desulfurization of molten iron ... Apr 425
Slaughter, E. R.: *Review of the Effects of Hydrogen in Steel ... Apr 430
*Small Melting Furnace Simulates Industrial Conditions ... Aug 1057
*Small Melting Shop; Dust and Fume Control ... Dec 1658
Smelters, smelting:
Cerro de Pasco Peruvian operation ... Aug 1058
copper demand, Magma Copper Co. ... Oct 1461
copper refinery ... Feb 235
smoke control at Cominco ... Nov 1536
Smoke:
control at Cominco ... Nov 1536
electric furnace ... Dec 1658
*Smoke Control at Cominco—New Developments in ... Nov 1536
Sommer, A. H.: *First-Hand Report on Use of Basic Refractories in European Open Hearth Practice ... Apr 443
*South Africa: Extraction Process for Gold-Uranium Ores ... Aug 1065
*Sponge Iron and H-Iron for Electric Furnace Charging ... Dec 1642
Starratt, F. W.: *Iron Agglomerates from the Marquette Range ... Nov 1546
*Status of Titanium Fabrication and Use ... Jan 30
Steel:
and coal community, Europe, America ... Oct 1458
depreciation, pricing policy ... Mar 338
Dwight-Lloyd sintering ... July 828
effects of hydrogen in ... Apr 430
L-D process in Austria ... June 760
oxygen blowing rate in stainless ... Mar 325
oxygen converters, U. S. ... June 762
pneumatic processes ... June 754
radiation effects on stainless ... May 669
scrap prices ... Dec 1651
trends, pneumatic process ... June 763
turbine spindle failure ... Mar 317
vacuum degassing ... Apr 420
Steel Co. of Wales, The ... July 832
Steelmaking:
alumina ladle linings ... Dec 1646
bessemer, 100 years ... June 742
blooming, slabbing mill practices ... Sep 1147
carbon removal ... Apr 418
coke rates ... Apr 439
constant humidity, blast furnaces, USSR ... Sep 1159
control instruments for bessemer ... June 764

desiliconized pig iron ... Dec 1645
dust, fume control ... Dec 1658
electric furnace charging ... Dec 1642
electric furnace, 50 years ... Dec 1637
European open hearth practice ... Apr 443
fuel rates in blast furnace ... Apr 432
hot tearing ... Dec 1654
lignite coke, blast furnaces ... Sep 1160
ore preparation, Steel Co. of Wales ... July 832
oxygen analyzer, open hearths ... Oct 1457
rolling mill output ... Nov 1541
Sendzimir cold strip mill ... Sep 1154
small furnace experimentation ... Aug 1057
zircon in electric furnaces ... Dec 1649
zircon ladle linings ... Dec 1648
Steinberg, M. A., and Sibert, M. E.: *Electrolytic Titanium ... Sep 1162
Steintveit, G.: *Acidity Control in Zinc Electrolysis ... Nov 1542
Stephens, W. W., and Morrison, C. Q.: *Zr and Hf Production Tailored to Yield Three Products. The Carborundum Metals Co. ... Mar 334
Stermon, R. B., et al.: *Inert Atmosphere Welding of Zirconium and Hafnium ... May 646
Stolz, G., Jr., and Paschkis, V.: *Quenching as a Heat Transfer Problem ... Aug 1074
Strassburger, J. H.: *Weirton's New Sintering Plant ... July 840
Strip mills:
Sendzimir mill ... Sep 1154
Sulfur:
effect, ingot thickness ... Nov 1541
Stukel, J. E.: *Future Trends in the Pneumatic Process ... June 763

T

Tankhouses:
electrical system ... Feb 254
Mufulira refinery ... Feb 239
Temperature:
constant humidity, blast furnaces USSR ... Sep 1159
effect on oxygen blowing rate ... Mar 325
high, nickel-base alloys ... Oct 1445
hot tearing ... Dec 1654
limitations, reactor fuel element design ... May 651
of irradiation ... May 667
Theilacker, J. S., et al.: *Inert Atmosphere Welding of Zirconium and Hafnium ... May 646
*There is New Emphasis on Research ... Nov 1530
Thomas, D. E., and Forscher, F.: *Properties of Zircaloy-2 ... May 640
Titanium:
beneficial to aircraft industry ... Jan 42
electrolytic ... Sep 1162
heat treatment ... Jan 35
means of fabricating ... Jan 30
*Titanium Symposium—Keynote Address ... Jan 21
Tix A.: *Production-Scale Vacuum Steel Degassing ... Apr 420
Transformation:
stresses introduced by, nuclear reactors ... May 653
zirconium, β-ω age-hardening ... Nov 1544
Transportation:
Mufulira refinery ... Feb 254
Tufnail, H. R., and Sharp, K. C.: *Ore Preparation Plant of The Steel Co. of Wales Ltd. ... July 832
Turbines:
spindle failure ... Mar 317

U

Union Carbide & Carbon Co., new research laboratory ... Nov 1530
United States:
European coal, steel community ... Oct 1458
oxygen converter plants ... June 762
Uranium:
Al-U alloys, reactors ... May 656
extraction, Au-U ores ... Aug 1065
melting, fabricating binary alloys ... Aug 1076
production ... May 637
USSR:
constant humidity blast furnaces ... Sep 1159
self-fluxing agglomerates ... July 852
*USSR: Constant Humidity Blast Furnaces ... Sep 1159
U. S. Steel Corp.:
beneficiation plant ... Nov 1546
new research laboratory ... Nov 1530
sintering at Extaca ... July 844

V

Vacuum metallurgy:
cast nickel alloys ... Oct 1430
melting, fabrication, binary uranium alloys ... Aug 1076
steel degassing ... Apr 420
VerSnyder, F. L.: *Past, Present, and Future of High Temperature Nickel Base Alloys ... Oct 1445

W

Weber, C. E.: *Fuel Element Design ... May 651
*Weirton's New Sintering Plant ... July 840
Welding:
inert atmosphere, zirconium and hafnium ... May 646
Westinghouse Electric Corp., new research laboratory ... Nov 1532
Whittenberger, E. J., and Hornak, J. N.: *The Desulfurization of Molten Iron ... Apr 425
Wilder, A. B.: *One Hundred Years of Bessemer Steelmaking ... June 742
Wilson, J. C., and Billington, D. S.: *Effect of Nuclear Radiation on Structural Materials ... May 665

Z

Zang, V. E., and Emmett, W. D.: *Zircon Ladle Linings For Cleaner, Low Cost Metal ... Dec 1648
Zinc:
Cerro de Pasco Peruvian operation ... Aug 1062
electrolysis, acidity control ... Nov 1542
Zirconium:
β-ω age hardening ... Nov 1544
inert atmosphere welding ... May 646
production by Carborundum Metals Co. ... Mar 334
properties ... May 640
vessel for HRT reactor ... May 648
*Zircon Ladle Linings . . . For Cleaner Low Cost Metal ... Dec 1648
*Zircon Ladle Linings . . . In Basic Electric Furnace Practice ... Dec 1649
*Zr and Hf Production Tailored to Yield Three Products. The Carborundum Metals Co. ... Mar 334

Part II. AIME News Index

A

Acta Metallurgica to receive support ... Jan 65
Adirondack section:
field trip to Appalachian Sulfides; visit by Carl E. Reistle, Jr. ... Nov 1588
hears talk on geological problems; re St. Lawrence Power Project ... Aug 1116
AIME:
annual business meeting ... Feb 289
annual meeting in New Orleans, 1957 ... July 873
annual meeting to be held in Dallas, 1963 ... Jan 65
awards at annual banquet, 1957 ... Dec 1681
Babson, E. C., nominated as vice-president ... July 870
bessemer centennial celebrated ... Feb 289
Bessemer Steel Committee ... May 709
Campbell, Larry E., presented Leo F. Reinartz scholarship ... July 873
Charles Bayer, retained to handle publicity in 1956 ... July 869
directory for 1957 to be published in June ... Sep 1206
Electric Furnace Steel Conference celebrating Golden Anniversary ... Sep 1207
Engineering Foundation Research funds ... Oct 1487
IBM address system ... Sep 1206
implementation of Long Range Planning ... Aug 1054
income and expenses ... Mar 362
Jackling, Daniel C., bequest ... Sep 1209
Kinzel, Augustus B., has been nominated for presidency in 1958 ... July 870
Legion of Honor names 1957 members ... Dec 1681
Long Range Planning Committee ... May 710
Long Range Planning report ... June 802
membership award ... Oct 1487
membership record in 1955 ... Jan 8
name changed ... Jan 65
new members, incentive for securing ... July 873
new seal to include the word *Petroleum* ... May 709
1957 officers elected ... Dec 1681
nominations for 1957 announced ... July 870
officers for 1956 declared elected ... Jan 65
off-the-record meeting of NOHC Pittsburgh Section ... July 873
Pierce, R. V., nominated as vice-president ... July 870
plans for 1957 Annual Meeting ... Sep 1203
President Reistle addresses Annual Meeting ... Mar 313
proposed Bylaws, Metallurgical Society ... Oct 1442
Reistle, Carl E., Jr., elected president ... Feb 290
report on headquarters site, engineering societies ... Feb 231
All-Institute Session, Annual Meeting ... Dec 1681
American Assn. for Advancement of Science ... Mar 364
American Welding Soc. to hold New England meeting ... Sep 1211
Annual Meeting 1963, to be held in Dallas ... Jan 65
Annual Meeting, 1957:
all-Institute session scheduled in New Orleans ... Dec 1681
awards announced ... Dec 1681
Cuba, site of post-convention tour ... Nov 1584
meeting features technical sessions, symposiums ... Sep 1203
meeting plans ... Oct 1487
Metals Branch ... Dec 1677
Annual Meeting, 1956:
condensed program ... Feb 292
Metals Branch program, 1956 ... Jan 14
report on New York meeting ... Apr 463
Awards:
Bell, R. C., Extractive Metallurgy Div. Award ... Dec 1681
Brantly, J. E., Anthony F. Lucas Medal ... Dec 1681
Caples, Russell B., James Douglas Medal ... Dec 1681
Fletcher, Andrew, Charles F. Rand Medal ... Dec 1681
Frank J. Tone, established by Niagara Frontier Section ... May 705
Gaudin, Antoine Marc, Robert H. Richards Award ... Dec 1681
Gillson, Joseph L., D. C. Jackling Award ... Dec 1681
Gordon, Paul, Mathewson Gold Medal ... Dec 1681
Hoover Medal for 1957 ... Sep 1204
Mortada, Mohamed, Rossiter W. Raymond ... Dec 1681
Panek, Louis A., Robert Peele Award ... Dec 1681
Peters, E., Extractive Metallurgy Div. award ... Dec 1681
Reinartz, Leo F., Benjamin F. Fairless Award ... Dec 1681
Sundquist, R. W., J. E. Johnson, Jr., Award ... Dec 1681
Tix, Arthur, Robert W. Hunt Medal ... Dec 1681
Turner, G. H., Extractive Metallurgy Div. Award ... Dec 1681

B

Bessemer Steel Committee, AIME:
centennial of bessemer steelmaking celebrated ... Feb 289
changes name to AIME Converter Steel Committee ... July 873
honors oldest living steel blower ... June 741
search for oldest living steel blower ... May 709
Blast Furnace, Coke Oven, and Raw Materials Conference:
conference officers ... Apr 408
meeting program ... Apr 411
officers elected ... Jan 65
plans for Cincinnati meeting ... Mar 357
plant trip picture ... June 801
review of meeting ... June 804
tentative program ... Mar 358
Boston Section:
hears Henry Hausner ... Mar 365
held first meeting of year on October 1st ... Nov 1588
Braithwaite, Toneson, honored as oldest living steel blower ... June 741
Buffalo NOHC Section:
annual fall meeting ... Dec 1679
annual meeting held ... Jan 66
reports activities ... Apr 462

C

Calgary Section:
organized for petroleum members ... Mar 364
Carlsbad Potash Section:
hears A. M. Gaudin ... May 710
Chalmers, Bruce; speaks at Cheshire, Conn. ... Mar 359
Chicago NOHC Section:
reports activities ... Apr 399
Chicago Section:
entertain students ... Jan 66
Cincinnati, site 1956 Blast Furnace, Coke Oven, and Raw Materials and National Open Hearth Steel Conferences ... Mar 357
Cleveland Section:
sponsors High Temperature Conference ... Dec 1681
College of Puget Sound Student Chapter, discontinued ... Mar 366
Colorado Plateau Section:
Reistle, Carl E., visits ... July 872
Colorado Section:
held dinner-meeting, talk on materials handling ... Nov 1588
Connecticut Section:
H. DeWitt Smith speaks ... Mar 365
held first meeting of 1956-1957 ... Oct 1490
W. E. Milligan speaks ... Jan 66
Converter Steel Committee AIME was AIME Bessemer Steel Committee ... July 873
Cornell University laboratory course ... May 705
Cottrell, A. H., IMD lecturer in 1958 ... Jan 65

D

Dallas Section:
to be host for 1963 Annual Meeting ... Jan 65
Davenport, Edmund S., Howe Memorial lecturer, 1957 ... Jan 65

Denver Petroleum Section:
petroleum branch members Duchesne, Uintah Counties, Utah, now included in area ... Nov 1588
Detroit NOHC Section:
hears James J. Bowden ... June 808
reports activities ... Apr 400
Detroit Section:
Frey, Donald N., present chairman ... Mar 364
Frey, Muir L., chairman in 1942 ... Mar 364
regional meeting scheduled for 1957 ... Dec 1682

E

Eastern NOHC Section:
fall meeting ... Sep 1205
fall meeting reported ... Dec 1679
reports activities ... Apr 402
ECPD:
AIME representatives named for year beginning October 1956 ... Dec 1681
new definition of engineering ... May 705
program held in Detroit ... Nov 1584
EJC:
affiliate membership in evaluated ... Dec 1635
Engineering Manpower Commission, report on ... Sep 1145
1956 General Assembly ... Mar 367
nuclear convention, AIME contribution to ... Mar 363
professional standards, employment conditions report ... June 728
survey of organization ... Apr 389
to hold Nuclear Science and Engineering Conference ... Mar 363
Electric Furnace Steel Conference:
conference committees ... Dec 1626
Johnson, E. R., speaks at the annual dinner ... Dec 1677
1955 conference, pictures ... Mar 360
1956 conference planned ... Sep 1207
program for conference ... Dec 1633
report of Pittsburgh 1955 conference ... Feb 289
tentative program, 1956 ... Nov 1581
El Paso Metals Section:
hears C. C. Homan, Jr., at dinner-meeting ... May 710
hears President Reistle ... July 872
hears R. T. Savage; research engineer ... Oct 1490
held meeting with Kidd Mining Club ... June 808
held October meeting ... Dec 1682
Women's Auxiliary Christmas dinner-dance at Hotel Cortez ... Mar 365
Engineering Foundation:
sponsor research projects ... Mar 366
Engineering Manpower Commission: report on ... Sep 1145
Engineering Manpower Commission, see also EJC.
Engineering Societies:
New York recommended as site ... Aug 1116
report on headquarters site ... Feb 231
Engineering Societies Library:
to exhibit French books ... May 707
Engineering Societies Personnel Service Inc., see ESPS.
Engineers Council for Professional Development, see ECPD.
Engineers Joint Council, see EJC.
ESPS:
report of Chicago office ... Oct 1486
Extractive Metallurgy Div.:
Annual Meeting reports, 1956 ... Apr 463
Annual Meeting plans, 1957 ... Nov 1583
Annual Meeting program, 1956 ... Jan 14
annual report ... May 705
award, 1956 ... May 706
Metals Branch nominations ... July 869
1957 award winners ... Dec 1680
Technical Publications Committee ... Nov 1584

F

Films:
Allegheny Ludlum Steel Corp.: steelmaking ... Nov 1588
Christensen Diamond Products Co.: diamonds ... Dec 1683
Ductile Cast Iron: International Nickel Co. Inc. ... May 710
Iron Making: International Film Bureau Inc. ... Dec 1683
Modern Memos: Modern Talking Picture Service Inc. ... Dec 1683
National Directory of Safety Films for 1956 available ... Aug 1116
No Time To Spare: International Film Bureau Inc. ... Dec 1683
Pathway to Profits: Link-Belt Co. ... Dec 1683
Petrified River: Union Carbide & Carbon Corp. ... Oct 1490
Quality Unlimited: Colorado Fuel & Iron Corp. ... Nov 1588
Science of Making Brass: Modern Talking Picture Service Inc. ... Nov 1588
What Comes Out of the Blast Furnace: International Film Bureau Inc. ... Dec 1683
What Goes Into the Blast Furnace: International Film Bureau Inc. ... Dec 1683
Finance:
AIME 1955 income, expenses ... Mar 362
dues bills mailed in November ... Dec 1681
Institute of Metals Div. annual report ... May 706
Jackling, Daniel C., bequest ... Sep 1209
French, H. J., biography ... June 789

G

Gaw, H. P., Chairman, 1956, NOHC, local arrangement ... Mar 357
Gordon Research Conference sponsored by Amer. Assn. for the Advancement of Science ... May 709
Great Bend Local Section:
new local section in Kansas ... Nov 1588

H

Hansen, Max, represents AIME at Verein Deutscher Ingenieure centennial ... Mar 361
Hardy, Robert Lansing, Gold Medal Award:
Hardy, Arthur C., contributes ... Mar 366
Hibbard, W. R., Jr., to speak at New England Regional meeting ... Mar 359
High-Temperature Conference Committee announced ... Dec 1681
Holt, Grover J., AIME President-Elect, to speak at Pacific Northwest Regional Conference ... Mar 367
Hoover, Herbert, Jr., to receive Hoover Medal, 1957 ... Sep 1204
Howe Memorial Lecture:
E. C. Davenport to speak, 1957 ... Jan 65
Maxwell Gensamer to speak, 1958 ... Dec 1680
1956 lecture published ... June 769

I

Industrial Notes ... Jan 6
Institute of Metals Division:
A. H. Cottrell to speak, 1958 ... Jan 65
Annual Meeting plans, 1957 ... Nov 1583
Annual Meeting program, 1956 ... Jan 14
Annual Meeting reports, 1956 ... Apr 463
annual report ... May 705
Cleveland, site of fall meeting ... July 869
fall meeting in Cleveland reported ... Dec 1678
fall meeting takes shape ... Aug 1113
high temperature conference committee announced ... Dec 1681
Metals Branch nominations ... July 870
1955 fall meeting reported ... Jan 67
Nuclear Metallurgy Symposium papers published ... Sep 1205
Nuclear Metallurgy Vol. II published ... Feb 289
program additions, fall meeting ... Oct 1485
program, fall meeting ... Sep 1201
powder metallurgy techniques ... Oct 1486
Reactive Metals conference to be held ... Feb 293
Research in Progress Session to be held ... July 869
Technical Publications Committee announced ... Nov 1584
Iron and Steel Division:
Annual Meeting plans, 1957 ... Nov 1583
Annual Meeting program, 1956 ... Jan 14
Annual Meeting reports, 1956 ... Apr 463
annual report ... May 707
conference in Cincinnati, 1956 ... June 804
Electric Furnace Steel Conference to celebrate Golden Anniversary ... Sep 1207
Electric Furnace Steelmaking Conference plans ... Nov 1581
Metals Branch nominations ... July 869
Technical Publications Committee announced ... Nov 1584

J

Jackling, D. C., makes bequest to AIME ... Sep 1208
Journal of Metals Award:
G. Bitsianes, R. D. Burlingame, T. L. Joseph receive ... June 804

K

Kidd, Desmond F., to speak at Pacific Northwest Regional Conference ... Mar 367

L

Lange, E. Paul:
evaluates EJC affiliate membership ... Dec 1635
surveys work of EJC ... Apr 389
Lehigh Valley Section:
hears Morris Bradley speak ... May 710
Local Sections:
new Subsection in Arizona Section ... July 873
Pittsburgh Section Off-the-Record meeting reported ... Jan 66
Steinbrenner, Lowell, Student Prize Winner ... Jan 66
Uintah Basin Subsection, new counties included in ... Nov 1588
Venezuela Petroleum Section releases territory ... Nov 1588
Long Range Planning for Institute Development:
committee reports ... June 802
implementation ... Aug 1054
proposed Bylaws, Metallurgical Society ... Oct 1442

M

Magnetism and Magnetic Materials Regional meeting ... Sep 1206
Massachusetts Inst. of Technology sponsors steel meeting ... May 707
Membership:
AIME sets record in 1955 ... Jan 8
incentive for securing new members ... July 873
Metals Branch drive ... Mar 364
pin awards planned ... Mar 366
Metallurgical Society of AIME:
proposed Bylaws ... Oct 1442
Metals Branch:
divisional annual reports ... May 706
membership drive ... Mar 364
1956 Annual Meeting reported ... Apr 463
nominations ... July 869
program 1956 Annual Meeting ... Jan 14
Rand, Clayton, will speak at Annual Meeting dinner in New Orleans ... Dec 1677
Metal Treating Inst. annual meeting ... Nov 1585
Mineral Industry Education Division:
award announced ... Jan 65
Minnesota Section:
education committee of AIME ... Oct 1489
Montana Section:
Columbia Falls dinner-meeting, plant inspection trip ... Nov 1588
held joint meeting ... July 872
Mudd, Harvey Seeley, college named for ... Mar 361
Mudd, Seeley W., Fund:
M2D volume planned ... Jan 65
sponsors publications on Minerals and Rocks ... Nov 1585

N

National Bureau of Standards describes research opportunities ... Aug 1115
National Open Hearth Steel Committee:
annual meeting held ... Nov 1584
conference committees, 1956 ... Apr 409
conference in Cincinnati, 1956 ... June 804
conference program ... Apr 411
Globe Trotters, Southwestern Section meet ... Jan 68
held meeting in Columbus, Ohio ... Nov 1584
preliminary program ... Mar 358
report of local sections ... Apr 399
National Science Foundation, The, scholarships ... Nov 1585
New England Regional Meeting:
conference reported ... June 807
tenth conference planned ... Mar 359
W. R. Hibbard, Jr., to speak ... Mar 359
New York Section:
dinner meeting ... Dec 1682
hears Simon D. Strauss, Irving Lipkowitz ... Nov 1588
hears Ward Minkler speak ... June 808
held a Hob-Nob meeting ... July 872
powder metallurgy meeting ... Oct 1486
New York University titanium lectures ... July 873
Niagara Frontier Section:
plans reactive metals meeting; photograph ... Mar 361
Reactive Metals conference ... May 705
sponsors Frank J. Tone award ... May 705
NOHC, see National Open Hearth Steel Committee.
Northern Ohio NOHC Section:
reports activities ... Apr 401
Nuclear Metallurgy Symposium papers to be published ... Sep 1205
Nuclear Metallurgy Vol. II published ... Feb 289
Nuclear Science and Engineering Conference to be held by EJC ... Mar 363

O

Obituaries:
Austin, Charles R. ... Nov 1595
Bagsar, Aaron B. ... Feb 295
Beeken, Alfred D. ... June 815
Buzzard, Robert W. ... July 879
Danforth, George, L., Jr. ... Mar 371
Finlay, Keith F. ... Feb 295
Frailey, William M. ... Sep 1211
French, Herbert J. ... Jan 72
Gerhard, G. Richard ... Nov 1595
Giesey, Victor A. ... Feb 295
Gillies, Donald B., appreciation by Walter Carroll ... Dec 1687
Harder, Oscar E. ... Sep 1211
Harroy, J. J. ... Jan 72
Hill, Erle G. ... Sep 1211
Hoch, Albert J. ... Nov 1595
Hysong, John D. ... Jan 72
Jackling, Daniel C., appreciation by L. S. Cates and E. V. Daveler ... July 878
Kinzie, Robert A. ... Mar 371
Lane, R. B. ... Jan 72
Lester, Horace H. ... Mar 371
Linney, William J. ... Nov 1595
Lombardi, Rudolph M. ... Sep 1211
Luetscher, Oliver P. ... July 879
Markin, Harold B. ... Feb 295
McKee, Arthur G. ... May 715
McLaughlin, Frank F. ... Aug 1119
Means, Ellison C. ... Mar 371
Merrill, Charles W., appreciation by Herbert S. Shuey ... Apr 475
Neale, Laurance I. ... Sep 1211
Peckitt, Leonard ... Dec 1687
Plank, William B. ... Aug 1119
Rutherford, Ronald C. ... July 879
Steele, Heath M., appreciation by Harold K. Hochschild ... May 715
Styri, Haakon ... Jan 72
Trask, Harold V. ... Mar 371
Upthegrove, Clair ... Dec 1687
Volmar, Allan R. ... June 815
Walter, Henry Y. ... Jan 71
Walker, Marshall S. ... Mar 371
Warren, Henry, Jr. ... Jan 72
Wheeler, Archer E. ... July 879
Willmore, Charles B. ... Feb 295
Wright, Clarence A., appreciation by David L. Forrester ... Feb 295
Office of Naval Research symposium on molybdenum ... Aug 1119
Office of Ordnance Research ... May 707
Oregon Section:
hears Donald H. Tilson ... Aug 1116

P

Pacific Northwest Regional Conference:
Holt, G. J., Kidd, D. F., Parr, J. G., to speak ... Mar 367
program ... Apr 461
Parr, J. Gordon, to speak at Pacific Northwest Regional Conference ... Mar 367
Pittsburgh NOHC Section:
Off-the-Record meeting held ... Jan 66

program, 1956 off-the-record meeting Oct 1485
reports activities Apr 462
Pittsburgh Section:
off-the-record meeting held Jan 66
program, 1956 off-the-record meeting Oct 1485
Publications:
policies established for 1957 Dec 1680

R

Reactive Metals Conference, see Regional Reactive Metals Conference.
Regional Reactive Metals Conference:
Frank J. Tone award to be presented May 705
planned by Niagara Frontier Section Feb 293
report of Buffalo conference May 708
Willy Ley to speak Mar 361
Reid, Thomas R., speaks, 1956, NOHC and Blast Furnace conferences Mar 357
Reistle, Carl E., Jr.:
elected AIME president Feb 290
guest of honor, Colorado Section, Denver Petroleum Section July 872
implementation of Long Range Planning Aug 1054
presented Denver Dollar Award at dinner-meeting of Denver Petroleum Section, Colorado Section July 872
speaks at Annual Meeting Mar 313
speaks to El Paso Metals Section July 872
tours Western Local Sections June 808
visits Colorado Plateau Section July 872
visits Montana Section July 808
Reno Sub-Section:
held luncheon meeting Nov 1588
Rocky Mountain Minerals Conference:
conference report, pictures Nov 1586
conference to be held at Salt Lake City Aug 1113
program Aug 1113
to be held at Salt Lake City Mar 359

S

Societe Francaise de Metallurgie July 869
Southern California Section:
Edward A. Loria speaks Jan 66
Southern Ohio NOHC Section:
annual meeting Nov 1584
reports activities Apr 401
Southwestern NOHC Section:
announces annual meeting program Sep 1206
fall meeting Dec 1679
Globe Trotters meet Jan 68
reports activities Apr 399
to hold 1956 Globe Trotter's meeting in Colorado Sep 1206
Spectrographers' Assn. to hold annual symposium in Chicago Nov 1584
Spindletop Local Section:
Gulf Coast, Delta, and Lou-Ark Section Mar 365
Stahl und Eisen Sep 1206
Starratt, F. Weston, joins editorial staff Mar 362
Steel Founders' Society Sep 1206
St. Louis Section:
dinner-meeting; L. M. Pidgeon speaks May 710
hears F. A. Forward Mar 365
Mansfield, Frank C., speaks at dinner-meeting Oct 1490
students; the *Student Story* July 872
tour of A. P. Green Fire Brick Co., Mexico, Mo. Nov 1588
Student Chapters of AIME:
College of Puget Sound Chapter, Tacoma, Wash., discontinued Mar 366
Petroleum Student Chapter, Colorado School of Mines Mar 365
rebate voted Jan 65
Student Story, activities of St. Louis Section July 872
Texas A & M Mar 362

T

Thornton, A. W.:
proposed Bylaws, Metallurgical Society of AIME Oct 1442
Tone, Frank J., award established May 705

U

Uintah Basin Subsection:
new counties included in local Subsection Nov 1588
University of Minnesota:
Edmund J. Longyear Fund Mar 364
Utah Section:
hears R. L. Done Mar 365
membership program Nov 1589
Rocky Mountain Minerals Conference to be held Aug 1113
sponsored Rocky Mountain Minerals Conference Nov 1586

V

Venezuela Petroleum Section:
releases territory Nov 1588
Verein Deutscher Ingenieure to hold centennial Mar 361

W

Washington, D. C., Section:
annual field trip July 872
dinner-meeting; Simon D. Strauss speaks June 808
hears H. DeWitt Smith Mar 365
hears John Garrett speak May 710
Western NOHC Section:
reports activities Apr 399
Western Venezuela Petroleum Section:
changes announced Nov 1588
Williams, Clyde, represents AIME at Verein Deutscher Ingenieure centennial Mar 361

Part III

Transactions, Metals Branch

January-December 1956, Vol. 206

A

Aaronson, H. I., and Wells, C.: *Sympathetic Nucleation of Ferrite* Oct 1216
Abrahamson, E. P., II and Grant, N. J.: *Beta Chromium* Aug 975
Absorption:
sphalerite Feb 257
Acetate:
solutions, ammonium Aug 1096
Activation energy:
creep of copper Feb 156
creep polycrystalline nickel Oct 1223
diffusion, liquid lead Feb 199
discussion Oct 1408
rate of oxidation of sphalerite Feb 257
self-diffusion, solid nickel May 483
solute diffusion, nickel-base solid solutions May 567
Activation Energy for High Temperature Creep of High Purity Aluminum Oct 1385
Activity Coefficient of Copper in Liquid Iron, Fe-C, and Fe-C-Si Alloys at 1600°C Aug 1102
Activity Coefficient of Copper in Liquid Iron at 1600°C Aug 1024
Aging:
Al-Mg-Zn Oct 1378
strain, AISI 4340 June 788
Alcock, C. B., Hudson, R. G., and McCabe, C. L.: *Sulfur Pressure Measurements above FeS in Equilibrium with Iron* May 693
Allotropic Transformations in Titanium, Zirconium, and Uranium Alloys Feb 162
Alloys:
activity coefficient of copper in Fe-C Aug 1102
allotropic transformations Feb 162
α-β titanium May 502
aluminum in Fe-Al Dec 1674
binary alloys:
activity coefficient of copper in Fe-C Aug 1102
α-β transformation, Cr-Fe May 614
aluminum in Fe-Al Dec 1674
cold-worked Al-Mg Oct 1247
CsCl-type ordered structures Feb 148
cube textures, Ni-Fe tapes May 593
diagram Ti-Au Aug 930
diffusion in Bi-Pb Nov 1580
Fe-Si order-disorder Oct 1290
fracture Zn-Al Oct 1241
friction, viscosity, silver Aug 894
grain boundary viscosity Aug 681
heat treatment, mechanical properties Ti-Fe May 521
high temperature, Ti-Al base Oct 1348
hydrogen embrittlement Ti-Mn Aug 907
infiltration TiC Aug 977
intermediate phases, transition elements Feb 265
discussion Oct 1412
martensitic transformation, Fe-Ni Oct 1393
martensitic transformation titanium Aug 1036
mechanical properties Ti-Mo Oct 1388
metastable phase, Fe-Ni May 585
Mg-U system May 562
microstructure Fe-S Aug 950
orientation, phases, Ti-Ni Aug 892
orientations in Zr-Cb Feb 122
oxidation Cu-Al Oct 1252
oxygen in liquid Fe-Ni Sep 1195
phase transformations May 531
precipitation, creep in Mg-Al Feb 146
discussion Oct 1410
precipitation hardening, Ti-Cu May 512
properties, solid Fe-Au Feb 91
retained-β phase, Ti-Ni May 514
self-diffusion, iron in Fe-C Nov 1577
solidification Al-Zn Aug 972
system Zr-N Feb 98
tensility, zirconium with iron May 486
Th-Cb, Th-Ti Feb 132
Ti-Fe phase relations May 573
discussion Oct 1417
Ti-Mo June 799
vapor pressure Fe-Cu Aug 1086
X-ray diffraction, Zr-H May 529
cast nickel Oct 1450
creep rupture by vacancy condensation Feb 106
creep, tensile test, aluminum May 497
diffusion in Bi-Pb Nov 1580
effect cooling rate on Feb 288
fracture magnesium May 589
hardenable steels June 770
hardness Apr 454
high damping ferromagnetic Oct 1295
hot-rolled textures, titanium Feb 113
hydrogen embrittlement, titanium Aug 923
hydrogen on β titanium Oct 1235
magnesium, corrosion Oct 1354
magnet, properties, orientations Aug 962
oxidation-resistant molybdenum Feb 171
oxygen in cupola-melted iron Dec 1670
oxygen in liquid Fe-Ni Sep 1195
phase transformations in titanium, manganese Oct 1324
plastic deformation, aluminum crystals May 477
quaternary alloys:
χ phase, Cr-Ni-Mn-Mo Feb 210
electrical properties, manganin-type Feb 203
Ni-Cr-Ti-Al Oct 1356
self-diffusion, iron in Fe-C Nov 1577
steels, low, hardenability Aug 1008
tempered titanium Aug 961
tensile properties magnesium Aug 936
ternary alloys:
activity coefficient of copper in Fe-C-Si Aug 1102
aging, Al-Mg-Zn Oct 1378
magnetic interactions, Fe-Ni-Al Oct 1285
structural stability, Ti-Mo-V May 491
Ti-Fe-O phase relations May 573
discussion Oct 1417
Ti-rich corner, Ti-Al-V Feb 211
discussion Oct 1456

Ti-Mo-O system ... May 595
Ti-V-Mo ... Aug 959
Ti-Mo ... June 790
vapor pressure Fe-Cu ... Aug 1086
yielding, solid solution ... Oct 1229
Aluminum:
aging, Al-Mg-Zn ... Oct 1378
Al-Cu, Al-Zr, bonding. Discussion ... May 619
cold-worked Al-Mg ... Oct 1247
fracture Zn-Al ... Oct 1241
gas content ... Dec 1672
grain growth, orientation ... May 517
discussion ... Oct 1413
grain growth, recrystallization ... May 504
discussion ... Oct 1413
growth copper layers during oxidation ... Oct 1252
high temperature creep ... Oct 1385
in Fe-Al alloys ... Dec 1674
influence on properties, steel ... Oct 1269
intercrystalline fracture ... May 544
discussion ... Oct 1416
magnetic interactions, Fe-Ni-Al ... Oct 1285
Ni-Cr-Ti-Al ... Oct 1356
nonoctahedral slip ... Oct 1344
precipitation, creep in Mg-Al ... Feb 146
discussion ... Oct 1410
recovery, cold-rolled crystals ... Oct 1226
recovery, recrystallization. Discussion ... May 618
recrystallization, zone-melted ... Aug 958
single crystals, plastic deformation ... May 477
solid solubility lithium in ... May 553
solid solution alloy, yielding ... Oct 1229
solidification Al-Zn ... Aug 972
solute diffusion in nickel ... May 567
tensile creep ... Feb 195
discussion ... Oct 1419
Ti-rich corner, Ti-Al-V ... Feb 211
discussion ... Oct 1420
Ti-36 pct Al ... Oct 1348
Ammonium:
acetate solutions ... Aug 1096
Anaconda Co., Great Falls billet plant ... Dec 1661
Anisotropy:
plastic, zinc monocrystals ... Oct 1326
Annealing:
collapse, dislocation loops ... Feb 189
magnet alloys ... Aug 962
neutron diffraction, metals ... Oct 1259
strain rate, tungsten ... Feb 142
Antimony:
crystallographic angles ... Feb 176
Arc melting:
Zr-N alloys ... Feb 98
Arora, O. P., Beck, P. A., and Darby, J. B., Jr.: *Occurrence of CsCl-Type Ordered Structures in Certain Binary Systems of Transition Elements* ... Feb 148
Atkins, D. F., and Rogers, B. A.: *Zirconium-Columbium Diagram.* Discussion ... May 619
Atkinson, R. H.: *Study of the Effect of Gases on the Melting, Casting, and Working of Palladium* Aug 1029
Atmosphere:
interaction during sintering ... Jan 49
Aust, K. T.: *Relative Interfacial Energies of Symmetrical Tilt Grain Boundaries in Silver* ... Aug 1026
Austenite:
influence, boron on transformation ... May 551
discussion ... Oct 1409
self-diffusion of iron ... Oct 1336
α nucleation, steels ... May 600
Averbach, B. L., Cohen, M., and Werner, F. E.: *Matrix Phase in Lower Bainite and Tempered Martensite* ... Oct 1484

B

Bainite:
matrix phase in ... Oct 1484
transformation Ni-Cr steel ... Aug 989
Bakish, R., and Robertson, W. D.: *Structure Dependent Chemical Activity of Polycrystalline Cu-Au—Experiments Relating to the Mechanism of Stress-Corrosion Cracking of Homogeneous Solid Solutions* ... Oct 1277
Basal Plane Development in Electrodeposited Hexagonal-Close-Packed Metals: Zinc, Titanium and Zirconium ... Sep 1192
Beaver, W. W., Wikle, K. G., and Klein, J. G.: *Fabrication of Thorium Powders* ... Apr 445
Bechtold, J. H.: *Strain Rate Effects in Tungsten* ... Feb 142
Beck, P. A., and Greenfield, P.: *Intermediate Phases in Binary Systems of Certain Transition Elements* ... Feb 265
discussion ... Oct 1412
Beck, P. A., and Lutts, A. H.: *Temperature Dependence of Recovery Phenomena in a Cold-Rolled Aluminum Single Crystal* ... Oct 1226
Beck, P. A., Darby, J. B., Jr., and Arora, O. P.: *Occurrence of CsCl-Type Ordered Structures in Certain Binary Systems of Transition Elements* ... Feb 148
Beck, W., Klier, E. P., and Sachs, G.: *Constant Strain Rate Bend Tests on Hydrogen-Embrittled High Strength Steels* ... Oct 1263
Beeghly, H. F.: *Low Manganese Steels for Nuclear Applications* Dec 1664
Beneficiation:
flocculation mineral suspensions Aug 1092
leaching of molybdenite ... June 794
precipitation metal from salt solution ... May 695
reaction zones, iron ore sintering ... July 853
Bentle, G. G., and Fishel, W. P.: *Gamma Loop Studies in the Iron-Silicon and Iron-Silicon-Titanium Systems* ... Oct 1345
Beta Chromium ... Aug 975
Beta Phase Parameters in the System Ti-V-Mo ... Aug 959
Bever, M. B., and Jaffe, D.: *Solidification of Aluminum-Zinc Alloys* ... Aug 972
Bever, M. B., Suoninen, E. J., and Genevray, R. M.: *Effect of Stress on the Martensitic Transformation in the Cu-Zn System* ... Feb 283
Binary alloys, see alloys.
Birchenall, C. E., and Condit, R. H.: *Effect of Noncollimated Radiation on Surface Activity Methods for the Determination of Diffusion Coefficients in Solids* ... Oct 1341
Birchenall, C. E., and Mead, H. W.: *Growth of Graphite in Cast Iron* ... Aug 1004
Self-Diffusion of Iron in Austenite ... Oct 1336
Birchenall, C., Mehl, R. F., and Landergren, U. S.: *Diffusion and Marker Movements in β Brass* ... Feb 73
Birks, L. S.: *Characteristics of the Bainite Transformation in a Ni-Cr Steel* ... Aug 989
Birtalan, J., and Bloom, R. A.: *Occurrence of Chi Phase in a 16 Pct Cr-15 Pct Ni-7 Pct Mn-6 Pct Mo Alloy* ... Feb 210
Bishop, H. L., Jr., et al.: *Equilibria of Sulfur and Oxygen between Liquid Iron and Open Hearth-Type Slags* ... July 862
Bismuth:
Bi-Mn system ... May 606
discussion ... Oct 1406
crystallographic angles ... Feb 176
diffusion in lead alloy ... Nov 1580
removal from lead ... Mar 341
Bitsianes, G., Joseph, T. L., and Burlingame, R. D.: *Reaction Zones in the Iron Ore Sintering Process* ... July 853
Blast furnaces:
presintering, Bunker Hill ... Oct 1469
rate of FeO reduction in slags ... Mar 351
sulfur transfer reaction, slags ... Nov 1549
Bloom, R. A., and Birtalan, J.: *Occurrence of Chi Phase in a 16 Pct Cr-15 Pct Ni-7 Pct Mn-6 Pct Mo Alloy* ... Feb 210
Blooming:
shrinkage cavity, reheating ... Sep 1199
Blooming, see also Mechanical working.
Blumenthal, H., and Silverman, R.: *Infiltration of TiC Skeletons* ... Aug 977
Bockstiegel, G.: *On the Rate of Sintering* ... May 580
Bokros, J. C., and Rosenthal, P. C.: *Liquid Emulsion Autoradiography of Metals* ... Feb 286
Bonding:
Al-Cu, Al-Zr. Discussion ... May 619
Boni, R. E., and Derge, G.: *Surface Structure of Nonoxidizing Slags Containing Sulphur* ... Jan 59
Surface Tensions of Silicates ... Jan 53
Boron:
doped silicon, solubility of lithium in ... Feb 276
hardenability mechanism ... Aug 984
influence on transformation, iron ... May 551
discussion ... Oct 1409
removal from silicon ... Oct 1316
treated steel, hardenability ... Aug 1091
vanadium boride ... Oct 1325
Bouiger, F. W., Lorig, C. H., and Frazier, R. H.: *Influence of Silicon and Aluminum on the Properties of Hot-Rolled Steel* ... Oct 1269
Brandt, J. L., and Cochran, C.: *Gas Content of Solid Aluminum by Solid Extraction and Vacuum Fusion* ... Dec 1672
Brass:
creep, β ... May 604
discussion ... Oct 1409
diffusion, β ... Feb 73
Bratina, W. J., and Winegard, W. C.: *Internal Friction in Zirconium* ... Feb 186
Bridge, J. R., and Vaughan, D. A.: *High Temperature X-Ray Diffraction Investigation of the Zr-H System* ... May 528
Bridge, J. R., Schwartz, C. M., and Vaughan, D. A.: *X-Ray Diffraction Determination of the Coefficients of Expansion of Alpha Uranium* ... Oct 1282
Bromley, L. A., and Petersen, A. W.: *Preparation of Metallic Titanium by Film Boiling* ... Feb 284
Bron, W. E., and Machlin, E. S.: *Grain Boundary Mobilities in High Purity Silver* ... May 513
Brown, N., and Herman, M.: *Influence of Order-Disorder on Creep of Beta Brass* ... May 604
discussion ... Oct 1409
Interaction of Dislocations and Long-Range Order ... Oct 1353
Bruch, C. A., McHugh, W. E., and Hockenbury, R. W.: *Variations in Radiation Damage to Metals* ... Oct 1362
Bryan, F. R., and Runge, E. F.: *Method for Spectrochemical Determination of Aluminum in Fe-Al Alloys* ... Dec 1674
Bunker Hill Co., The, presintering practices ... Oct 1469
Burlingame, R. D., Bitsianes, G., and Joseph, T. L.: *Reaction Zones in the Iron Ore Sintering Process* ... July 853
Burris, L., Stockman, C. H., and Dillon, I. G.: *Contribution to Mathematics of Zone Melting.* Discussion ... May 615
Burt, R. R., Carney, D. J., and Whittenberger, E. J.: *Hardenability Factors for Hypereutectoid Low-Alloy Steels* ... Aug 1008
Busby, C. C., and Paxton, H. W.: *Strain Aging of AISI 4340* ... June 788
Busby, P. E., Hart, D. P., and Wells, C.: *Diffusion of Nitrogen in Iron* ... May 686

C

Cadmium:
separation from zinc concentrates ... May 682
Cahn, J. W., and Fullman, R. L.: *On the Use of Lineal Analysis for Obtaining Particle Size Distribution Functions in Opaque Samples* ... May 610
Cahn, R. W., and Graham, C. D., Jr.: *Grain Growth Rates and Orientation Relationships in the Recrystallization of Aluminum Single Crystals* ... May 517
discussion ... Oct 1413
Measurement of Grain Growth Rates in Recrystallization ... May 504
discussion ... Oct 1413
Canadian Copper Refiners Ltd.: recent developments ... Aug 1081
Carbon:
brittle fracture, cemented TiC ... Aug 982
effect on ductility, cast molybdenum ... Feb 150
effect, Ti-Mo alloys ... June 790
graphite in cast iron ... Aug 1004
infiltration TiC ... Aug 977
low, sheet coils, mechanical working ... Sep 1169
monoxide, equilibria in reactions ... Nov 1558
saturated iron, FeO reduction in slags ... Mar 351
self-diffusion, iron in Fe-C ... Nov 1577
Carew, W. F., Crossley, F. A., and Kessler, H. D.: *Evaluation of the Structural Stability of Ti-Mo-V Alloys* ... May 491
Carlson, O. N., et al.: *Thorium-Columbium and Thorium-Titanium Alloy Systems* ... Feb 132
Carney, D. J., Whittenberger, E. J., and Burt, R. R.: *Hardenability Factors for Hypereutectoid Low-Alloy Steels* ... Aug 1008
Carreker, R. P., Jr.: *Tensile Deformation of Germanium Single Crystals* ... Feb 111
Carreker, R. P., Jr., and Guard, R. W.: *Tensile Deformation of Molybdenum as a Function of Temperature and Strain Rate* ... Feb 178
discussion ... Oct 1420
Casting:
gases on, palladium ... Aug 1029
graphite growth, iron ... Aug 1004
Great Falls billet plant ... Dec 1661
oxygen in cupola-melted iron ... Dec 1670
Casting, see also Fabrication.
Cech, R. E.: *Evidence for Solidification of a Metastable Phase in Fe-Ni Alloys* ... May 585
correction ... Aug 949
Cech, R. E., and D. Turnbull: *Heterogeneous Nucleation of the Martensite Transformation* ... Feb 124
Cellular structure:
crystal structure plutonium phases ... Oct 1256
transition elements, binary systems ... Feb 265
discussion ... Oct 1412
Chang, H. C., and Grant, N. J.: *Mechanism of Grain Boundary Sliding* ... Feb 169
Mechanism of Intercrystalline Fracture ... May 544
discussion ... Oct 1416
Some Observations on the Structure of Grain Boundary Fracture Surfaces ... Oct 1241
Characteristics of the Bainite Transformation in a Ni-Cr Steel ... Aug 989
Chatterjee, G. P.: *Hardness of Metals and Alloys* ... Apr 454
Chemical analyses:
sintering iron ore ... July 856
Chemical Polishing of Pure Zinc ... May 511
Chiotti, P., Tracy, G. A., and Wilhelm, H. A.: *Magnesium-Uranium System* ... May 562
Chipman, J., and Koros, P. J.: *Activity Coefficient of Copper in Liquid Iron, Fe-C, and Fe-C-Si Alloys at 1600°C* ... Aug 1102
Chipman, J., and St. Pierre, G. R.: *Sulfur Equilibria between Gases and Slags containing Fe* ... Oct 1474
Chipman, J., and Wriedt, H. A.: *Oxygen*

in Liquid Iron-Nickel Alloys Sep 1195
Chipman, J., et al.: *Equilibria of Sulfur and Oxygen between Liquid Iron and Open Hearth-Type Slags* July 862
Hydrogen in Steelmaking Slags Nov 1568
Chiswik, H. H., and Lloyd, L. T.: *Deformation Mechanisms of Alpha-Uranium Single Crystals.* Discussion May 616

Chloride:
corrosion Cu_3Au by ferric Oct 1340

Chlorine:
purification of $GeCl_4$ May 688

Chromium:
α-σ transformation, Cr-Fe May 614
bainite transformation Aug 989
β chromium Aug 975
binary system of Feb 265
discussion Oct 1412
χ phase, Cr-Ni, Mn-Mo Feb 210
Cr-N terminal solid solution May 556
ferromagnetic Oct 1295
Ni-Cr-Ti-Al Oct 1356
Chu, W. L.: *475°C Embrittlement of Chromized Coatings on Low Carbon Steel.* Discussion May 616

Cobalt:
sulfur embrittlement May 578
Cochardt, A. W.: *High Damping Ferromagnetic Alloys* Oct 1295
Cochran, C. N., and Brandt, J. L.: *Gas Content of Solid Aluminum by Solid Extraction and Vacuum Fusion* Dec 1672
Cohen, M., and Kaufman, L.: *Martensitic Transformation in the Iron-Nickel System* Oct 1393
Cohen, M., Werner, F. E., and Averbach, B. L.: *Matrix Phase in Lower Bainite and Tempered Martensite* Oct 1484

Coils:
low carbon sheet Sep 1169
temperatures, hot strip mill Sep 1174

Cold rolling:
high purity Al-Mg Oct 1247
recovery, aluminum Oct 1226
Si-Fe Aug 1017
structural changes, molybdenum Oct 1298
Cold rolling, work, see also Fabrication.

Cold work:
silver Aug 993

Columbium:
orientations in Zr-Cb Feb 122
Th-Cb, Th-Ti Feb 132
Zr-Cb diagram. Discussion May 619
Comparison of Techniques in a Study of Zinc Self-Diffusion Feb 137

Composition:
Cr-N terminal solid solution May 556

Concentrates:
zinc, separation, germanium and cadmium from May 682
Condit, R. H., and Birchenall, C. E.: *Effect of Noncollimated Radiation on Surface Activity Methods for the Determination of Diffusion Coefficients in Solids* Oct 1341
Constant Strain Rate Bend Tests on Hydrogen Embrittled High Strength Steels Oct 1263

Constitution:
partial diagram, Ti-$TiAu_3$ Aug 930
Constitution of Nickel-Rich Quarternary Alloys of the Ni-Cr-Ti-Al System Oct 1356
Contribution to the Bi-Mn System May 606
discussion Oct 1406
Contribution to Mathematics of Zone Melting. Discussion May 615

Cooling:
hardness commercial titanium alloys Feb 288

Copper:
activity coefficient Aug 1102
activity coefficient in liquid iron Aug 1024
Al-Cu, Al-Zr bonding. Discussion May 619
creep Feb 156
creep, β brass May 604
discussion Oct 1409
diffusion, β-brass Feb 73
electrical properties, manganin-type alloys Feb 203
grain boundary viscosity Aug 881
Great Falls billet plant Dec 1661
growth external layers Oct 1252
magnetite in Hurley smelter Sep 1182
martensitic transformation Feb 283
ordering in corrosion Cu_3Au Oct 1340
precipitation hardening, Ti-Cu May 512
recent developments, refining Aug 1081
recrystallization. Discussion May 618
roasting, cuprous sulfide June 800A
structure-dependent chemical activity, Cu_3Au Oct 1277
sublimation figures May 515
vapor pressure Aug 1086
Corcoran, R., and Wiener, G.: *Deformation and Recrystallization of Silicon Iron* Aug 901
Correlation of the Tensile Properties of Pure Magnesium and Four Commercial Alloys with Their Mode of Fracturing Aug 936

Corrosion:
gallium, magnesium alloys Oct 1354
ordering, Cu_3Au Oct 1340
stress cracking, Cu_3Au Oct 1277
Craighead, C. M., Jaffee, R. I., and Lenning, G. A.: *Effect of Testing Variables on the Hydrogen Embrittlement of Titanium and a Ti-8 Pct Mn Alloy* Aug 907
Hydrogen Embrittlement of β-Stabilized Titanium Alloys Aug 923

Creep:
aluminum alloy May 497
aluminum crystals, plastic deformation May 477
and precipitation Feb 146
discussion Oct 1410
diffusion, iron Aug 928
high purity aluminum Feb 195
discussion Oct 1419
order-disorder, β brass May 604
discussion Oct 1409
polycrystalline zinc Oct 1326
Creep of Copper at Intermediate Temperatures Feb 156
Creep of Polycrystalline Nickel Oct 1223
Creep-Rupture by Vacancy Condensation Feb 106
Crossley, F. A., Kessler, H. D., and Carew, W. F.: *Evaluation of the Structural Stability of Ti-Mo-V Alloys* May 491
Crossley, F. A., Kessler, H. D., and Rausch, J. J.: *Titanium-Rich Corner of the Ti-Al-V System* Feb 211
discussion Oct 1420

Crucibles:
use, Mg-U May 562
Crystal Structure of Delta-Prime Plutonium and the Thermal Expansion Characteristics of Delta, Delta-Prime, and Epsilon Plutonium Oct 1256
Crystallographic Angles for Bismuth and Antimony Feb 176
Crystallographic Angles for Orthorhombic (Alpha) Uranium. Addendum Oct 1408

Crystallography:
α-uranium. Discussion May 616
aluminum, plastic deformation May 477
annealing temperature, cube texture Aug 967
collapse, dislocation loops Feb 189
CsCl-type ordered structures Feb 148
cubic textures, Ni-Fe tapes May 593
deformation, recrystallization Si-Fe Aug 901
dislocations, germanium Aug 946
grain boundary fracture Oct 1241
grain boundary mobilities, silver May 513
grain boundary sliding Feb 169
grain growth rates May 504
discussion Oct 1413
grain growth orientation, aluminum May 517
discussion Oct 1413
hot-rolled textures, titanium alloys Feb 113
intercrystalline fracture May 544
discussion Oct 1416
iodide titanium Oct 1304
magnet alloys Aug 962
neutron diffraction, annealed metals Oct 1259
nonoctahedral slip, aluminum Oct 1344
orientation in Zr-Cb alloy Feb 122
plastic anistropy zinc Oct 1326
plastic flow in titanium Feb 115
recovery, cold-worked Al-Mg Oct 1247
recovery phenomena, aluminum Oct 1226
recovery, recrystallization aluminum. Discussion May 618
recrystallization textures Si-Fe Aug 1017
rolled, annealed titanium Feb 80
self-diffusion, magnesium Aug 918
self-diffusion, zinc Feb 164
structure, plutonium phases Oct 1256
structural changes, molybdenum Oct 1298
sublimation figures May 515
sympathetic nucleation, ferrite Oct 1216
tensile deformation, germanium Feb 111
titanium hydride July 861
zinc, etch pits, dislocations Aug 998
zinc, self-diffusion Feb 137
zone-melted aluminum Aug 958

Cube texture:
temperature Aug 967
Cubic Texture in Ultrathin Tapes of 48 Pct Ni-Fe Alloy May 593
Cutler, I. B., and Wadsworth, M. E.: *Flocculation of Mineral Suspensions with Coprecipitated Polyelectrolytes* Aug 1092

D

Dana, A. W., Jr., Shortsleeve, F. J., and Troiano, A. R.: *Relation of Flake Formation in Steel to Hydrogen, Microstructure, and Stress.* Discussion Oct 1404
Danko, J. S., and Griest, A. J.: *Sublimation Figures in Nickel, Copper, and Zinc* May 515
Darby, J. B., Jr., Arora, O. P., and Beck, P. A.: *Occurrence of CsCl-Type Ordered Structures in Certain Binary Systems of Transition Elements* Feb 148
Davey, T. R. A.: *Debismuthizing of Lead* Mar 341
Deardorff, D. K., and Hayes, E. T.: *Melting Point Determination of Hafnium, Zirconium, and Titanium* May 509
Debismuthizing of Lead Mar 341
DeCarlo, V. J., and Gilman, J. J.: *Chemical Polishing of Pure Zinc* May 511

Deformation:
collapse, dislocation loops Feb 189
germanium single crystals Feb 111
grain boundary sliding Feb 169
graphite growth, cast iron Aug 1004
martensitic transformation, titanium Aug 1036
molybdenum Feb 178
discussion Oct 1420
neutron diffraction, annealed metals Oct 1259
plastic, aluminum single crystals May 477
plastic flow in titanium Feb 115
precipitation, solid solutions May 675
tensile creep, aluminum Feb 195
discussion Oct 1419
zinc monocrystals Aug 998
Deformation and Recrystallization of Silicon Iron Aug 901
Deformation Mechanisms of Alpha-Uranium Single Crystals. Discussion May 616
Delayed Yielding in a Substitutional Solid Solution Alloy Oct 1229
Demmler, A. W., Jr.: *Recrystallization of Zone-Melted Aluminum* Aug 958
Density Distribution in Metal Powder Compacts Feb 215

Deoxidation:
silicon for, steel Oct 1269
Derge, G., and Boni, R. E.: *Surface Structure of Nonoxidizing Slags Containing Sulphur* Jan 59
Surface Tensions of Silicates Jan 53
Derge, G., Simnad, M. T., and Yang, L.: *Direct Measurement of Ferrous Ion Mobility in Liquid Iron Silicate by a Radioactive Tracer Technique* May 690
Self-Diffusion of Iron in Molten Fe-C Alloys Nov 1577
Derge, G., Yang, L., and Pound, G. M.: *Mechanism of Electrical Conduction in Molten Cu_2S-Cu Cl and Mattes* June 783
Dickerson, R. F., Gerds, A. F., and Vaughan, D. A.: *Metallographic Identification of Nonmetallic Inclusions in Uranium* Apr 456
Dickinson, J. M., et al.: *Thorium-Columbium and Thorium-Titanium Alloy Systems* Feb 132

Diffraction:
neutron, annealed metals Oct 1259
nitride of uranium Feb 78
titanium hydride July 861
vanadium boride, X-ray Oct 1325
X-ray, α uranium Oct 1282
X-ray, Zr-H May 528

Diffusion:
coefficients in solids Oct 1341
creep, α, γ, iron Aug 928
iron in Fe-C Nov 1577
nitrogen in iron May 686
self-diffusion:
creep of copper Feb 156
iron in austenite Oct 1336
magnesium Aug 918
solid nickel May 483
zinc Feb 137
solute, nickel-base solid solutions May 567
Diffusion and Marker Movements in Beta Brass Feb 73
Diffusion in a Molten Bi-0.255 Atomic Pct Pb Alloy Nov 1580
Diffusion in Liquid Lead Feb 199
discussion Oct 1408
Diffusion of Nitrogen in Iron May 686
Dillon, I. G., Burris, L., and Stockman, C. H.: *Contribution to Mathematics of Zone Melting.* Discussion May 615
Direct Measurement of Ferrous Ion Mobility in Liquid Iron Silicate by a Radioactive Tracer Technique May 690

Dislocations:
and long-range order Oct 1353
interfacial energies, silver Aug 1026
loops, collapse during annealing Feb 189
zinc Aug 998
Dislocations in Plastically Bent Germanium Crystals Aug 946

Disorder:
order, Fe-Si Oct 1290
order, influence, β brass May 604
discussion Oct 1409

Dissociation:
oxidation Cu-Al Oct 1252
Domagala, R. F., McPherson, D. J., and Hansen, M.: *System Zirconium-Nitrogen* Feb 98

Domains:
configurations, grain-oriented Si-Fe Oct 1319
Dorn, J. E., and Shepard, L. A.: *Delayed Yielding in a Substitutional Solid Solution Alloy* Oct 1229
Dorn, J. E., and Tietz, T. E.: *Creep of Copper at Intermediate Temperatures* Feb 156
Dorn, J. E., Huang, H. I-L., and Sherby, O.D.: *Activation Energy for High Temperature Creep of High Purity Aluminum* Oct 1385
Dorn, J. E., Hauser, F. E., and Landon, P. R.: *Fracture of Magnesium Alloys at Low Temperature* May 589
Dresher, W. H., Wadsworth, M. E., and Fassell, W. M., Jr.: *A Kinetic Study of the Leaching of Molybdenite* June 794

Ductility:
influences on, molybdenum Feb 150
Dunn, C. G., and Koh, P. K.: *Primary Recrystallization Textures in Cold Rolled Si-Fe Crystals* Aug 1017
Duwez, P., and Martens, H.: *Heat Evolved and Volume Change in the Alpha-Sigma Transformation in Cr-Fe Alloys* May 614
Duwez, P., Pietrokowsky, P., and Frink, E.: *Investigation of the Partial Constitution Diagram Ti-$TiAu_3$* Aug 930
Dwight, A. E.: *Allotropic Transformations in Titanium, Zirconium, and Uranium Alloys* Feb 162

E

Effect of Carbon on Some Properties of Ti-Mo Alloys ..... June 790
Effect of Cooling Rate on Hardness of Commercial Titanium Alloys ..... Feb 288
Effect of Gallium on Resistance to Corrosion of Magnesium Alloys Oct 1354
Effect of Hydrogen on Alpha Titanium Alloys ..... Oct 1235
Effect of Mo, W, and V on the High Temperature Rupture Strength of Ferritic Steel ..... Oct 1373
Effect of Noncollimated Radiation on Surface Activity Methods for the Determination of Diffusion Coefficients in Solids ..... Oct 1341
Effect of Plastic and Elastic Stresses on the Losses and the Domain Configurations of Grain-Oriented 3 Pct Si-Fe ..... Oct 1319
Effect of Prolonged Heating at High Temperature on the Hardenability of Boron-Treated Steels ..... Aug 1091
Effect of Stress on the Martensitic Transformation in the Cu-Zn System ..... Feb 283
Effect of Testing Variables on the Hydrogen Embrittlement of Titanium and a Ti-8 Pct Mn Alloy ..... Aug 907
Effect of the Annealing Temperature on the Formation of the Cube Texture ..... Aug 907
Effects of Alloying Elements on Plastic Deformation in Aluminum Single Crystals ..... May 477
Effects of Alloying Elements on the Electrical Properties of Manganin-Type Alloys ..... Feb 203
Effects of Oxygen, Nitrogen, and Carbon on the Ductility of Cast Molybdenum ..... Feb 150
Eibaum, C., Winegard, W. C., and Ojala, T.: *Nonoctahedral Slip in Aluminum* ..... Oct 1344
Electric furnaces:
Great Falls billet plant ..... Dec 1661
hydrogen in slags ..... Nov 1573
recent developments, copper refining ..... Aug 1081
Electrical conduction:
molten CuS-Cu Cl, mattes ..... June 783
Electrical properties, see properties.
Electrochemistry:
ferrous ion mobility ..... May 690
Electrodeposition:
basal plane development in ..... Sep 1192
Electrolysis:
molten CuS-Cu Cl, mattes ..... June 783
Electrons:
solubility of lithium in boron-doped silicon ..... Feb 276
Ellinger, F. H.: *Crystal Structure of Delta-Prime Plutonium and the Thermal Expansion Characteristics of Delta, Delta-Prime, and Epsilon Plutonium* ..... Oct 1256
Ellingsaeter, D., and Rosenqvist, T.: *Silicothermic Reduction of Magnesia and Ferrosilicon Activities* ..... Aug 1111
Elsea, A. R., Manning, G. K., and Simcoe, C. R.: *Further Work on the Boron-Hardenability Mechanism* ..... Aug 984
Embrittlement:
chromized coatings, steel. Discussion ..... May 616
hydrogen, α-β titanium ..... May 502
hydrogen, in zirconium ..... May 536
hydrogen, strain rate, steels ..... Oct 1263
hydrogen, Ti-Mn ..... Aug 907
hydrogen, titanium ..... Aug 923
of cobalt, sulfur ..... May 578
Ence, E., and Margolin, H.: *Re-Examination of Ti-Fe and Ti-Fe-O Phase Relations* ..... May 572
discussion ..... Oct 1417
Energy:
interfacial, silver ..... Aug 1026
level, electron, molten alloys ..... June 783
Equilibria in Reactions of Hydrogen, and Carbon Monoxide with Dissolved Oxygen in Liquid Iron; Equilibrium in Reduction of Ferrous Oxide with Hydrogen, and Solubility of Oxygen in Liquid Iron ..... Nov 1558
Equilibria of Sulfur and Oxygen between Liquid Iron and Open Hearth-Type Slags ..... July 862
Equilibrium, equilibria:
alloy systems ..... Feb 263
FeS in, with iron ..... May 693
lithium in aluminum ..... May 553
sulfur elimination, copper smelting ..... Sep 1182
sulfur, gases and slags ..... Oct 1474
Equilibrium Considerations in the Roasting of Metallic Sulfides ..... Aug 1105
Etching:
chemical polishing, zinc ..... May 511
pits, zinc ..... Aug 998
Etch Pits and Dislocations in Zinc Monocrystals ..... Aug 998
Evaluation of the Structural Stability of Ti-Mo-V Alloys ..... May 491
Evidence for Solidification of a Metastable Phase in Fe-Ni Alloys ..... May 585
correction ..... Aug 949
Expansion:
coefficient, α uranium ..... Oct 1282
thermal characteristics, plutonium phases ..... Oct 1256
Experimental Determination of Oxygen in Cupola-Melted Cast Iron ..... Dec 1670
Experimental Observations Concerning the Collapse of Dislocation Loops During Annealing ..... Feb 189
Experimental Planning for Rapid Determination of Optimum Process Conditions. Discussion ..... Oct 1401
Experimental techniques:
chemical polishing, zinc ..... May 511
collapse, dislocation loops ..... Feb 189
density distribution, metal powder compacts ..... Feb 215
determination optimum process conditions. Discussion ..... Oct 1401
diffusion, β-brass ..... Feb 73
diffusion coefficients, solids ..... Oct 1341
diffusion, liquid lead ..... Feb 199
discussion ..... Oct 1408
hydrogen embrittlement Ti-Mn ..... Aug 907
hydrogen water vapor ..... Oct 1316
lineal analysis, opaque samples ..... May 610
liquid emulsion of metals, autoradiography ..... Feb 286
lithium solubility in aluminum ..... May 553
marker movements, diffusion, β-brass ..... Feb 73
quenching dilatometer ..... Feb 191
recrystallization copper. Discussion ..... May 618
solidification Al-Zn ..... Aug 972
strain rate bend, steels ..... Oct 1263
stress-corrosion, Cu_3Au ..... Oct 1277
zinc self-diffusion ..... Feb 137
Exposure of Shrinkage Cavity during the Reheating of Open Top Killed Steel Ingots ..... Sep 1199
Extractive metallurgy:
equilibrium considerations in roasting ..... Aug 1105
gas content, aluminum ..... Dec 1672
Great Falls billet plant ..... Dec 1661
magnetite in Hurley copper smelter ..... Sep 1182
metallic titanium by film boiling ..... Feb 284
purification of $GeCl_4$ by ..... May 688

F

Fabrication:
cast iron, graphite in ..... Aug 1004
cold-rolled, Si-Fe ..... Aug 1017
cold rolling molybdenum ..... Oct 1298
cold work, silver ..... Aug 993
dislocations, bent germanium ..... Aug 946
gases on palladium ..... Aug 1029
iodide zirconium ..... Oct 1304
low manganese steels, nuclear applications ..... Dec 1664
recovery, cold-rolled aluminum ..... Oct 1226
rhenium ..... Aug 913
rolled, annealed magnet alloys ..... Aug 962
tempered titanium alloys ..... Aug 961
thorium powders ..... Apr 445
Fabrication of Thorium Powders ..... Apr 445
Factors Affecting Coiling Temperatures in the Hot Strip Mill ..... Sep 1174
Farrar, P. A., Stone, L. F., and Margolin, H.: *Titanium-Molybdenum-Oxygen System* ..... May 595
Fassell, Jr., W. M., Dresher, W. H., and Wadsworth, M. E.: *A Kinetic Study of the Leaching of Molybdenite* ..... June 794
Fassell, Jr., W. M., Wadsworth, M. E., and Ong, J. N., Jr.: *Kinetic Study of the Oxidation of Sphalerite* ..... Feb 257
Ferrite:
sympathetic nucleation ..... Oct 1216
Ferrosilicon
activity, silicothermic reduction ..... Aug 1111
Filtering Apparatus for Study of Liquid-Solid Equilibria in Alloy Systems ..... Feb 263
Finch, D. I., and Pollock, D. D.: *Effects of Alloying Elements on the Electrical Properties of Manganin-Type Alloys* ..... Feb 203
Fishel, W. P., and Bentle, G. G.: *Gamma Loop Studies in the Iron-Silicon and Iron-Silicon-Titanium Systems* ..... Oct 1345
Flocculation of Mineral Suspensions with Coprecipitated Polyelectrolytes ..... Aug 1092
Forbes, S. S.: *Recent Developments in Electrolytic Copper Refining* ..... Aug 1081
Forscher, F.: *Strain-Induced Porosity and Hydrogen Embrittlement in Zirconium* ..... May 536
475°C Embrittlement of Chromized Coatings on Low Carbon Steel. Discussion ..... May 616
Fracture:
brittle, cemented TiC ..... Aug 982
hydrogenated vanadium ..... Oct 1213
intercrystalline ..... May 544
discussion ..... Oct 1416
structure of grain boundary ..... Oct 1241
tensile properties magnesium ..... Aug 936
Fracture of Magnesium Alloys at Low Temperature ..... May 589
Frazier, R. H., Boulger, F. W., and Lorig, C. H.: *Influence of Silicon and Aluminum on the Properties of Hot-Rolled Steel* ..... Oct 1269
French, H. J.: *Some Aspects of Hardenable Alloy Steels* ..... June 770
Friction:
internal, copper ..... Aug 881
internal, silver ..... Aug 894
internal, silver ..... Aug 993
internal, zirconium ..... Feb 186
Frink, E. P., Duwez, P., and Pietrokowsky, P.: *Investigation of the Partial Constitution Digram Ti-TiAu$_3$* ..... Aug 930
Frye, J. H., Jr., Holder, S. G., Jr., and Stansbury, E. E.: *Internal Friction Studies on Silver and Certain Silver-Base Solid Solutions* ..... Aug 993
Fuller, C. S., and Reiss, H.: *Influence of Holes and Electrons on the Solubility of Lithium in Boron-Doped Silicon* ..... Feb 276
Fullman, R. L., and Cahn, J. W.: *On the Use of Lineal Analysis for Obtaining Particle Size Distribution Functions in Opaque Samples* ..... May 610
Fuming:
zinc concentrates, separation ..... May 682
Further Studies of the Properties of Rhenium Metal ..... Aug 913
Further Work on the Boron-Hardenability Mechanism ..... Aug 984

G

Galena:
kinetics of oxidation ..... Aug 1096
Gallium:
resistance to corrosion ..... Oct 1354
Gamma Loop Studies in the Iron-Silicon and Iron-Silicon-Titanium Systems ..... Oct 1345
Gartner, W.: *On the Relationship Between Resistivity and Lifetime in Semiconductors* ..... May 612
Gas Content of Solid Aluminum by Solid Extraction and Vacuum Fusion ..... Dec 1672
Gases:
effect on, palladium ..... Aug 1029
sulfur equilibria ..... Oct 1474
Geisler, A. H., and Keeler, J. H.: *Preferred Orientations in Rolled and Annealed Titanium* ..... Feb 80
Geisler, A. H., and Swalin, R. A.: *Neutron Diffraction Study of Annealing Textures in Drawn Body-Centered-Cubic Metals* Oct 1259
Genevray, R. M., Bever, M. B., and Suominen, E. J.: *Effect of Stress on the Martensitic Transformation in the Cu-Zn System* ..... Feb 283
Gerds, A. F., Vaughan, D. A., and Dickerson, R. F.: *Metallographic Identification of Nonmetallic Inclusions in Uranium* ..... Apr 456
Germanium:
dislocations in ..... Aug 946
in semiconductors ..... Feb 276
purification of $GeCl_4$ ..... May 688
resistivity, lifetime, semiconductors ..... May 612
separation from zinc concentrates ..... May 682
single crystals, tensile deformation ..... Feb 111
Gilman, J. J.: *Etch Pits and Dislocations in Zinc Monocrystals* ..... Aug 998
Plastic Anisotropy of Zinc Monocrystals ..... Oct 1326
Gilman, J. J., and DeCarlo, V. J.: *Chemical Polishing of Pure Zinc* ..... May 511
Gjostein, N. A., Levinson, D. W., and Mondolfo, L. F.: *Structural Changes During the Aging in an Al-Mg-Zn Alloy* ..... Oct 1378
Glaser, F. W., and Ivanick, W.: *Study of the Fe-Si Order-Disorder Transformation* ..... Oct 1290
Glide:
polycrystalline zinc, creep
Goettge, D. T., and Robinson, E. L.: *Some Effects of Hot Strip Mill Rolling Temperatures on Properties of Low Carbon Sheet Coils* ..... Sep 1169
Gokcen, N. A.: *Equilibria in Reactions of Hydrogen, and Carbon Monoxide with Dissolved Oxygen in Liquid Iron; Equilibrium in Reduction of Ferrous Oxide with Hydrogen, and Solubility of Oxygen in Liquid Iron* ..... Nov 1558
Gold:
diagram, Ti-TiAu$_3$ ..... Aug 930
ordering in corrosion Cu_3Au ..... Oct 1340
properties, solid Fe-Au ..... Feb 91
structure-dependent chemical activity, Cu_3Au ..... Oct 1277
Goldhoff, R. M., Speiser, R., and Spretnak, J. W.: *Effect of Prolonged Heating at High Temperature on the Hardenability of Boron-Treated Steels* ..... Aug 1091
Gordon, P.: *Microcalorimetric Investigation of the Recrystallization of Copper.* Discussion ..... May 618
Graham, C. D., Jr., and Cahn, R. W.: *Grain Growth Rates and Orientation Relationships in the Recrystallization of Aluminum Single Crystals* ..... May 517
discussion ..... Oct 1413
Measurement of Grain Growth Rates in Recrystallization ..... May 504
discussion ..... Oct 1413
Grains:
creep-rupture by vacancy condensation ..... Feb 106
fracture magnesium alloys ..... May 589
oriented Si-Fe ..... Oct 1319
Grain boundaries:
fracture surfaces ..... Oct 1241
interfacial energy, silver ..... Aug 1026
internal friction, zirconium ..... Feb 186
sliding ..... Feb 169
viscosity, copper ..... Aug 881
viscosity, silver ..... Aug 894
Grain Boundary Mobilities in High Purity Silver ..... May 513

Grain Growth:
in recrystallization ... May 504
discussion ... Oct 1413
instability, interface. Discussion ... May 617
recrystallization, aluminum ... May 517
discussion ... Oct 1413
recrystallization, iodide zirconium ... Oct 1304
Ti-Mo alloys ... June 793
Grain Growth Rates and Orientation Relationships in the Recrystallization of Aluminum Single Crystals ... May 517
discussion ... Oct 1413
Grant, N. J., and Abrahamson, E. P., II: *Beta Chromium* ... Aug 975
Grant, N. J., and Chang, H. C.: *Mechanism of Grain Boundary Sliding* ... Feb 169
Mechanism of Intercrystalline Fracture ... May 544
discussion ... Oct 1416
Some Observations on the Structure of Grain Boundary Fracture Surfaces ... Oct 1241
Grant, N. J., and Wang, C.-C.: *Transformation of the TiO Phase* Feb 184
Grant, N. J., et al.: *Equilibria of Sulfur and Oxygen Between Liquid Iron and Open Hearth-Type Slags* ... July 862
Hydrogen in Steelmaking Slags ... Nov 1568
Grant, N. J., Ramachandran, S., and King, T. B.: *Rate and Mechanism of the Sulfur Transfer Reaction* ... Nov 1549
Graphite:
growth, cast iron ... Aug 1004
Great Falls Billet Plant ... Dec 1661
Greenfield, P., and Beck, P. A.: *Intermediate Phases in Binary Systems of Certain Transition Elements* ... Feb 265
discussion ... Oct 1412
Griest, A. J., and Danko, J. C.: *Sublimation Figures in Nickel, Copper, and Zinc* ... May 515
Griffith, W. A.: *Experimental Planning for Rapid Determination of Optimum Process Conditions.* Discussion ... Oct 1401
Growth of External Copper Layers During the Internal Oxidation of Dilute Cu-Al Alloys in a Cu_2O-Cu Pack ... Oct 1252
Growth of Graphite in Cast Iron ... Aug 1004
Guard, R. W., and Carreker, R. P., Jr.: *Tensile Deformation of Molybdenum as a Function of Temperature and Strain Rate* ... Feb 178
discussion ... Oct 1420
Guard, R. W., and Hibbard, W. R., Jr.: *Tensile Creep of High Purity Aluminum* ... Feb 195
discussion ... Oct 1419
Guinier, A.: *Precipitation Phenomena in Supersaturated Solid Solutions* ... May 673

H

Hafnium:
melting point ... May 509
Hall, L. D., and Rothman, S. J.: *Diffusion in a Molten Bi-0.255 Atomic Pct Pb Alloy* ... Nov 1580
Diffusion in Liquid Lead ... Feb 199
discussion ... Oct 1408
Hammond, J. P., Holland, J. R., and McHargue, C. J.: *Hot-Rolled Textures of Titanium Alloys* ... Feb 113
Hansen, H. et al.: *Contribution to the Bi-Mn System* ... May 606
discussion ... Oct 1406
Hansen, M., Domagala, R. F, and McPherson, D. J.: *System Zirconium-Nitrogen* ... Feb 98
Hardenability, hardness:
aging, Al-Mg-Zn ... Oct 1378
alloy steels ... June 770
boron ... Aug 984
cooling rate, titanium ... Feb 288
effect, prolonged heating, steel ... Aug 1091
metal powder compacts, density ... Feb 215
precipitation, solid solution ... May 674
precipitation, Ti-Cu ... May 512
Hardenability Factors for Hypereutectoid Low-Alloy Steels ... Aug 1008
Hardness of Metals and Alloys ... Apr 454
Hart, D. P., Wells, C., and Busby, P. E.: *Diffusion of Nitrogen in Iron* ... May 686
Hauser, F. E., Landon, P. R., and Dorn, J. E.: *Fracture of Magnesium Alloys at Low Temperature* ... May 589
Hayes, E. T., and Deardorff, D. K.: *Melting Point Determination of Hafnium, Zirconium, and Titanium* ... May 509
Heat, heat treatment:
prolonged, effect on steel ... Aug 1091
shrinkage cavities, steel ingots ... Sep 1199
steels ... June 777
Heat Evolved and Volume Change in the Alpha-Sigma Transforr tion in Cr-Fe Alloys ... M.y 614
Heat Treatment and Mechanical Properties of Ti-Fe Alloys ... May 521
Heat Treatment and Mechanical Properties of Ti-Mo Alloys ... Oct 1388
Herman, M., and Brown, N.: *Influence of Order-Disorder on Creep of Beta Brass* ... May 604
discussion ... Oct 1409
Interaction of Dislocations and Long-Range Order ... Oct 1353
Heterogeneous Nucleation of the Martensite Transformation ... Feb 124
Hibbard, W. R., Jr.: *Preferred Orientations and Magnetic Properties of Rolled and Annealed Permanent Magnet Alloys* ... Aug 962
Hibbard, W. R., Jr., and Guard, R. W.: *Tensile Creep of High Purity Aluminum* ... Feb 195
discussion ... Oct 1419
High Damping Ferromagnetic Alloys ... Oct 1295
High Speed Quenching Dilatometer ... Feb 191
High temperature data, see Temperature
High Temperature X-Ray Diffraction Investigation of the Zr-H System ... May 528
Hockenbury, R. W., Bruch, C. A., and McHugh, W. E.: *Variations in Radiation Damage to Metals* ... Oct 1362
Hoffman, R. E., Pikus, F. W., and Ward, R. A.: *Self-Diffusion in Solid Nickel* ... May 483
Holden, A. N., and Seymour, W. E.: *Intermediate Phase in the Uranium-Zirconium System* ... Oct 1312
Holden, F. C., Ogden, H. R., and Jaffee, R. I.: *Heat Treatment and Mechanical Properties of Ti-Fe Alloys* ... May 521
Heat Treatment and Mechanical Properties of Ti-Mo Alloys ... Oct 1388
Holder, S. G., Jr., Stansbury, E. E., and Frye, J. H., Jr.: *Internal Friction Studies on Silver and Certain Silver-Base Solid Solutions* ... Aug 993
Holland, J. R., McHargue, C. J., and Hammond, J. P.: *Hot-Rolled Textures of Titanium Alloys* ... Feb 113
Hot-Rolled Textures of Titanium Alloys ... Feb 113
Hot Rolling:
steel, properties ... Oct 1269
Hot rolling, see also Fabrication
Howe, L. M., Saarema, E., and Parr, J. G.: *Precipitation Hardening in a Ti-Cu Alloy* ... May 512
Huang, H. I-L., Sherby, O. D., and Dorn, J. E.: *Activation Energy for High Temperature Creep of High Purity Aluminum* ... Oct 1385
Hudson, R. G., McCabe, C. L., and Alcock, C. B.: *Sulfur Pressure Measurements above FeS in Equilibrium with Iron* ... May 693
Hurley copper smelter, Kennecott Copper Corp. ... Sep 1182
Hydrides:
titanium, crystal symmetry ... July 861
Hydrogen:
boron removal from silicon ... Oct 1316
embrittled, strain rate, steels ... Oct 1263
embrittlement, titanium ... Aug 923
embrittlement, Ti-Mn ... Aug 907
embrittlement, zirconium ... May 536
equilibria in reactions ... Nov 1558
flake formation steel. Discussion ... Oct 1404
gas content, aluminum ... Dec 1672
reduction with ... May 695
vanadium, properties ... Oct 1213
X-ray diffraction, Zr-H ... May 528
Hydrogen Embrittlement of Beta-Stabilized Titanium Alloys ... Aug 923
Hydrogen Embrittlement of a Commercial Alpha-Beta Titanium Alloy ... May 502
Hydrogen in Steelmaking Slags ... Nov 1568

I

Ikeda, G. M., and Sibakin, J. G.: *Factors Affecting Coiling Temperatures in the Hot Strip Mill* ... Sep 1174
Inclusions:
nonmetallic in uranium ... Apr 456
Infiltration of TiC Skeletons ... Aug 977
Influence of Boron on the Rate of Transformation of High Purity Iron ... May 551
discussion ... Oct 1409
Influence of Holes and Electrons on the Solubility of Lithium in Boron-Doped Silicon ... Feb 276
Influence of Order-Disorder on Creep of Beta Brass ... May 604
discussion ... Oct 1409
Influence of Silicon and Aluminum on the Properties of Hot-Rolled Steel ... Oct 1269
Ingots:
shrinkage cavities ... Sep 1199
Ingvalson, L. J., and Miller, Roy H.: *Great Falls Billet Plant* ... Dec 1661
Ingvoldstad, D., and Lee, H. E.: *Modernization of Bunker Hill Pre-sintering Practices* ... Oct 1469
Instability of a Smooth Solid-Liquid Interface during Solidification. Discussion ... May 617
Institute of Metals Div.:
discussion ... May 615
discussion ... Oct 1405
1956 annual lecture ... May 673
Institute of Metals Lecture, 1956 ... May 673
Interaction Between Metals and Atmospheres During Sintering ... Jan 49
discussion ... Jan 51
Interaction of Dislocations and Long-Range Order ... Oct 1353
Interaction of Precipitation and Creep in Mg-Al Alloys ... Feb 146
discussion ... Oct 1410
Interfaces:
energy, silver ... Aug 1026
instability, solid-liquid. Discussion ... May 617
Intermediate phase, see also Phases.
Intermediate Phase in the Uranium-Zirconium System ... Oct 1312
Intermediate Phases in Binary Systems of Certain Transition Elements ... Feb 265
discussion ... Oct 1412
Internal Friction and Grain Boundary Viscosity of Copper and of Binary Copper Solid Solutions ... Aug 881
Internal Friction and Grain Boundary Viscosity of Silver and Binary Silver Solid Solutions ... Aug 894
Internal Friction in Zirconium ... Feb 186
Internal Friction Studies on Silver and Certain Silver-Base Solid Solutions ... Aug 993
Investigation of the Partial Constitution Diagram Ti-$TiAl_{32}$ ... Aug 930
Ions:
exchange, uranium extraction ... Aug 1068
mobility, ferrous ... May 690
Iron:
activity coefficient of copper in liquid ... Aug 1102
α-σ transformation, Cr-Fe ... May 614
aluminum in Fe-Al ... Dec 1674
carbon-saturated, FeO reduction in slags ... Mar 351
corrosion Cu_3Au by ferric chloride ... Oct 1340
cube textures, Ni-Fe ... May 593
deformation, recrystallization Si-Fe ... Aug 901
diffusion of nitrogen ... May 686
diffusion on creep, α, γ ... Aug 928
dissolved oxygen in liquid, equilibria ... Nov 1558
electrical properties, manganin-type alloys ... Feb 203
equilibria, slags ... July 862
ion mobility ... May 690
ferromagnetic alloys ... Oct 1295
Fe-Si, Fe-Si-Ti, γ loop ... Oct 1345
Fe-Si order-disorder ... Oct 1290
grain-oriented Si-Fe ... Oct 1319
graphite growth in cast ... Aug 1004
heat treatment, mechanical properties ... May 521
influence boron on transformation ... May 551
discussion ... Oct 1409
liquid, activity coefficient copper ... Aug 1024
magnetic interactions, Fe-Ni-Al ... Oct 1285
martensite transformation ... Feb 124
martensitic transformation Fe-Ni ... Oct 1393
metastable phase, Fe-Ni ... May 585
microstructure Fe-S ... Aug 950
neutron diffraction, annealed ... Oct 1259
oxides in slags ... Oct 1474
oxygen in cupola-melted cast ... Dec 1670
oxygen in liquid Fe-Ni ... Sep 1195
properties, solid Fe-Au ... Feb 91
reaction zone, sintering process ... July 853
recrystallization textures, Si-Fe ... Aug 1017
rupture strength, ferritic steels ... Oct 1373
self-diffusion in austenite ... Oct 1336
self-diffusion in Fe-C ... Nov 1577
sulfur pressure measurements ... May 693
Ti-Fe, Ti-Fe-O phases ... May 572
discussion ... Oct 1417
vapor pressure Fe-Cu ... Aug 1026
zirconium with, tensility ... May 486
Iron and Steel Div:
discussion ... Oct 1401
1956 Howe Memorial Lecture ... June 770
Ivanick, W., and Glaser, F. W.: *Study of the Fe-Si Order-Disorder Transformation* ... Oct 1290

J

Jaffe, D., and Bever, M. B.: *Solidification of Aluminum-Zinc Alloys* ... Aug 972
Jaffee, R. I., and Sims, C. T.: *Further Studies of the Properties of Rhenium Metal* ... Aug 913
Jaffee, R. I., Craighead, C. M., and Lenning, G. A.: *Hydrogen Embrittlement of Beta-Stabilized Titanium Alloys* ... Aug 923
Jaffee, R. I., Holden, F. C., and Ogden, H. R.: *Heat Treatment and Mechanical Properties of Ti-Fe Alloys* ... May 521
Heat Treatment and Mechanical Properties of Ti-Mo Alloys ... Oct 1388
Jaffee, R. I., Lenning, G. A., and Craighead, C. M.: *Effect of Testing Variables on the Hydrogen Embrittlement of Titanium and a Ti-8 Pct Mn Alloy* ... Aug 907
Jaffee, R. I., Lenning, G. A., and Spretnak, J. W.: *Effect of Hydrogen on Alpha Titanium Alloys* ... Oct 1235
Jaffe, L. D.: *Metallographic Identification and Crystal Symmetry of Titanium Hydride* ... July 861
Microstructural Differences in Tempered Titanium Alloys ... Aug 961
Jaumot, F. E., Jr., and Smith, R. L.: *Comparison of Techniques in a Study of Zinc Self-Diffusion* ... Feb 137
Self-Diffusion in Single and Polycrystals of Zinc at Low Temperatures ... Feb 164
Joseph, T. L., Burlingame, R. D., and Bitsianes, G.: *Reaction Zones in the Iron Ore Sintering Process* ... July 853
Journal of Metals Award Paper 1956 ... July 853

K

Kaufman, L., and Cohen, M.: *Martensitic Transformation in the Iron-Nickel System* ... Oct 1393
Keeler, J. H.: *Preferred Orientations in a Meta-Stable Body-Centered Cubic Zr-Cb Alloy* ... Feb 122
Tensile Characteristics of Particle-

Strengthened Alloys of Zirconium with Iron ... May 486
Keeler, J. H., and Geisler, A. H.: *Preferred Orientations in Rolled and Annealed Titanium* ... Feb 80
Keh, A. S., and Van Vlack, L. H.: *Microstructure of Iron-Sulfur Alloys* ... Aug 950
Kellogg, H. H.: *Equilibrium Considerations in the Roasting of Metallic Sulfides* ... Aug 1105
Kennecott Copper Corp., Hurley copper smelter ... Sep 1182
Kenworthy, H., Starliper, A. G., and Ollar, A.: *Separation of Germanium and Cadmium from Zinc Concentrates by Fuming* ... May 682
Kessler, H. D., and McAndrew, J. B.: *Ti-36 Pct Al as a Base for High Temperature Alloys* ... Oct 1348
Kessler, H. D., Carew, W. F., and Crossley, F. A.: *Evaluation of the Structural Stability of Ti-Mo-V Alloys* ... May 491
Kessler, H. D., Crossley, F. A., and Rauch, J. J.: *Titanium-Rich Corner of the Ti-Al-V System* ... Feb 211
discussion ... Oct 1420
Kinetic Study of the Leaching of Molybdenite ... June 794
Kinetic Study of the Oxidation of Sphalerite ... Feb 257
Kinetics:
hydrogen reduction ... May 700
leaching molybdenite ... June 794
Kinetics of the Oxidation of Galena in Ammonium Acetate Solutions under Oxygen Pressure ... Aug 1096
King, T. B., Grant, N. J., and Ramachandran, S.: *Rate and Mechanism of the Sulfur Transfer Reaction* ... Nov 1549
King, T. B., Grant, N. J., Walsh, J. H., and Chipman, J.: *Hydrogen in Steelmaking Slags* ... Nov 1568
Kirkbride, L. D., and Philbrook, W. O.: *Rate of FeO Reduction from a CaO-SiO$_2$-Al$_2$O$_3$ Slag by Carbon-Saturated Iron* ... Mar 351
discussion ... Oct 1463
Klein, J. G., Beaver, W. W., and Wikle, K. G.: *Fabrication of Thorium Powders* ... Apr 445
Kiler, E. P., Sachs, G., and Beck, W.: *Constant Strain Rate Bend Tests on Hydrogen-Embrittled High Strength Steels* ... Oct 1263
Koh, P. K., and Dunn, C. G.: *Primary Recrystallization Textures in Cold Rolled Si-Fe Crystals* ... Aug 1017
Koros, P. J., and Chipman, J.: *Activity Coefficient of Copper in Liquid Iron, Fe-C, and Fe-C-Si Alloys at 1600°C* ... Aug 1102
Kuczynski, G. C., and Zapiatynskyj, I.: *Density Distribution in Metal Powder Compacts* ... Feb 215
Kuo, K.: *New Intermediate Phase in Burnt Tungsten Steels* ... Feb 97

L

Lad, R. A., and Papazian, H.: *On the Ordering Effects in the Corrosion of Cu$_3$Au by Aqueous Ferric Chloride* ... Oct 1340
Lander, H. N., et al.: *Equilibria of Sulfur and Oxygen between Liquid Iron and Open Hearth-Type Slags* ... July 862
Landergren, U. S., Birchenall, C. E., and Mehl, R. F.: *Diffusion and Marker Movements in Beta Brass* ... Feb 73
Landon, P. R., Dorn, J. E., and Hauser, F. E.: *Fracture of Magnesium Alloys at Low Temperature* ... May 589
Langenberg, F. C.: *Activity Coefficient of Copper in Liquid Iron at 1600°C* ... Aug 1024
Predicting the Solubility of Nitrogen in Molten Steel ... Aug 1099
Leaching:
kinetics of, molybdenite ... June 794
Lead:
debismuthizing ... Mar 341
diffusion in bismuth alloy ... Nov 1580
liquid, diffusion ... Feb 199
discussion ... Oct 1048
presintering, Bunker Hill ... Oct 1469
Lee, H. E., and Ingvoldstad, D.: *Modernization of Bunker Hill Presintering Practices* ... Oct 1469
Lenning, G. A., Craighead, C. M., and Jaffee, R. I.: *Effect of Testing Variables on the Hydrogen Embrittlement of Titanium and a Ti-8 Pct Mn Alloy* ... Aug 907
Hydrogen Embrittlement of Beta-Stabilized Titanium Alloys ... Aug 923
Lenning, G. A., Spretnak, J. W., and Jaffee, R. I.: *Effect of Hydrogen on Alpha Titanium Alloys* ... Oct 1235
Lequear, H. A., and Lubahn, J. D.: *Some Transient Effects During Creep and Tensile Tests of an Aluminum Alloy* ... May 497
Levinson, D. W., Mondolfo, L. F., and Gjostein, N. A.: *Structural Changes During the Aging in an Al-Mg-Zn Alloy* ... Oct 1378
Levinson, D. W., Rostoker, W., and Yamamoto, A.: *Effect of Carbon on Some Properties of Ti-Mo Alloys* ... June 790
Liquid Emulsion Autoradiography of Metals ... Feb 286
Lithium:
solid solubility in aluminum ... May 553
solubility in boron-doped silicon ... Feb 276
Littmann, M. F.: *Cubic Texture in Ultrathin Tapes of 48 Pct Ni-Fe Alloy* ... May 593
Liu, Y. C.: *Martensitic Transformation in Binary Titanium Alloys* ... Aug 1036
Lloyd, L. T., and Chiswik, H. H.: *Deformation Mechanisms of Alpha-Uranium Single Crystals. Discussion* ... May 616
Loria, E. A., Lownie, H. W., Jr., and Mallett, M. W.: *Experimental Determination of Oxygen in Cupola-Melted Cast Iron* ... Dec 1670
Lorig, C. H., Frazier, R. H., and Boulger, F. W.: *Influence of Silicon and Aluminum on the Properties of Hot-Rolled Steel* ... Oct 1269
Low Manganese Steels for Nuclear Applications ... Dec 1664
Low, J. R., Jr.: *Observations on the Brittle Fracture of Cemented Titanium Carbide* ... Aug 982
Lownie, H. W., Jr., Mallett, H. W., and Loria, E. A.: *Experimental Determination of Oxygen in Cupola-Melted Cast Iron* ... Dec 1670
Lubahn, J. D., and Lequear, H. A.: *Some Transient Effects During Creep and Tensile Tests of an Aluminum Alloy* ... May 497
Lunt, H. E., et al.: *Thorium-Columbium and Thorium-Titanium Alloy Systems* ... Feb 132
Lutts, A. H., and Beck, P. A.: *Temperature Dependence of Recovery Phenomena in a Cold-Rolled Aluminum Single Crystal* ... Oct 1226
Lytton, J. L., and Sherby, O. D.: *Possible Role of Diffusion in the Creep of Alpha and Gamma Iron* ... Aug 928

M

Macgregor, E. R., Peters, B. F., and Parr, J. G.: *Phase Transformations in Titanium-Rich Alloys of Titanium and Manganese* ... Oct 1324
Machlin, E. S.: *Creep-Rupture by Vacancy Condensation* ... Feb 106
Machlin, E. S., and Bron, W. E.: *Grain Boundary Mobilities in High Purity Silver* ... May 513
Maddin, R., and Ujiiye, N.: *Structural Changes in Molybdenum Single Crystals Due to Cold Rolling* ... Oct 1298
Magnesia:
silicothermic reduction ... Aug 1111
solubility in slags ... July 864
Magnesium:
aging, Al-Mg-Zn ... Oct 1378
alloys, corrosion ... Oct 1354
cold-worked Al-Mg ... Oct 1247
fracture ... May 589
Mg-U system ... May 562
precipitation, creep in Mg-Al ... Feb 146
discussion ... Oct 1410
self-diffusion ... Aug 918
tensile properties ... Aug 936
Magnesium-Uranium System ... May 562
Magnetism:
aluminum in Fe-Al ... Dec 1674
Bi-Mn system ... May 606
discussion ... Oct 1406
diagrams, Fe-Ni-Al ... Oct 1285
ferromagnetic alloys ... Oct 1295
plastic, elastic stresses, Si-Fe ... Oct 1319
properties, magnet alloys ... Aug 962
ultrathin tapes Ni-Fe ... May 593
Magnetite in the Hurley Copper Smelter ... Sep 1182
Mallett, M. W., Loria, E. A., and Lownie, H. W., Jr.: *Experimental Determination of Oxygen in Cupola-Melted Cast Iron* ... Dec 1670
Manganese:
Bi-Mn system ... May 606
discussion ... Oct 1406
χ phase, Cr-Ni-Mn-Mo ... Feb 210
electrical properties, manganin-type alloys ... Feb 203
hydrogen embrittlement Ti-Mn ... Aug 907
phase transformations ... Oct 1324
solute diffusion in nickel ... May 567
steels, low, nuclear applications ... Dec 1664
Manning, G. K., Simcoe, C. R., and Elsea, A. R.: *Further Work on the Boron-Hardenability Mechanism* ... Aug 984
Margolin, H., and Ence, E.: *Re-Examination of Ti-Fe and Ti-Fe-O Phase Relations* ... May 572
discussion ... Oct 1417
Margolin, H., Farrar, P. A., and Stone, L. P.: *Titanium-Molybdenum-Oxygen System* ... May 595
Marsh, L. L., Jr., and Underwood, E. E.: *Effects of Alloying Elements on Plastic Deformation in Single Crystals* ... May 477
Martens, H.: *Effect of Cooling Rate on Hardness of Commercial Titanium Alloys* ... Feb 288
Martens, H., and Duwez, P.: *Heat Evolved and Volume Change in Alpha-Sigma Transformation in Cr-Fe Alloys* ... May 614
Martensite:
hardenability, steels ... Aug 1008
matrix phase in ... Oct 1484
stress in the Cu-Zn system ... Feb 283
transformation Fe-Ni ... Oct 1393
transformation, nucleation ... Feb 124
Martensitic Transformation in Binary Titanium Alloys ... Aug 1036
Martensitic Transformation in the Iron-Nickel System ... Oct 1393
Martin, A., and Swalin, R. A.: *Solute Diffusion in Nickel-Base Substitutional Solid Solutions* ... May 567
Martin, D. L.: *Sulfur Embrittlement of Cobalt* ... May 578
Martin, F. E., and Raring, R. H.: *High Speed Quenching Dilatometer* ... Feb 191
Matrix Phase in Lower Bainite and Tempered Martensite ... Oct 1484
Mattes:
electrical conduction ... June 783
McAndrew, J. B., and Kessler, H. D.: *Ti-36 Pct Al as a Base for High Temperature Alloys* ... Oct 1348
McCabe, C. L., Alcock, C. B., and Hudson, R. G.: *Sulfur Pressure Measurements above FeS in Equilibrium with Iron* ... May 693
McCabe, C. L., and Morgan, J. A.: *Mechanism of Sulfate Formation During the Roasting of Cuprous Sulfide* ... June 800A
McHargue, C. J., Holland, J. R., and Hammond, J. P.: *Hot-Rolled Textures of Titanium Alloys* ... Feb 113
McHugh, W. E., Hockenbury, R. W., and Bruch, C. A.: *Variations in Radiation Damage to Metals* ... Oct 1362
McPherson, D. J., Hansen, M., and Domagala, R. F.: *System Zirconium-Nitrogen* ... Feb 98
Mead, H. W., and Birchenall, C. E.: *Growth of Graphite in Cast Iron* ... Aug 1004
Self-Diffusion of Iron in Austenite ... Oct 1336
Measurement of Grain Growth Rates in Recrystallization ... May 504
discussion ... Oct 1413
Mechanical properties, see properties.
Mechanical working:
coiling temperature, hot strip mill ... Sep 1174
shrinkage cavity during reheating ... Sep 1199
strip mill rolling temperatures, effect ... Sep 1169
Mechanics:
hydrogen reduction ... May 700
Mechanism of Electrical Conduction in Molten Cu-S-Cu Cl and Mattes ... June 783
Mechanism of Grain Boundary Sliding ... Feb 169
Mechanism of Intercrystalline Fracture ... May 544
discussion ... Oct 1416
Mechanism of Plastic Flow in Titanium at Low and High Temperatures ... Feb 115
Mechanism of Sulfate Formation During the Roasting of Cuprous Sulfide ... June 800A
Mehl, R. F., Landergren, U. S., and Birchenall, C. E.: *Diffusion and Marker Movements in Beta Brass* ... Feb 73
Melting:
gases on, palladium ... Aug 1029
Melting Point Determination of Hafnium, Zirconium, and Titanium ... May 509
Merlini, A.: *Effect of the Annealing Temperature on the Formation of the Cube Texture* ... Aug 967
Metallics:
liquid-solid equilibrium, alloy systems ... Feb 263
titanium by film boiling ... Feb 284
Metallographic Identification and Crystal Symmetry of Titanium Hydride ... July 861
Metallographic Identification of Nonmetallic Inclusions in Uranium ... Apr 456
Metals:
hardness ... Apr 454
liquid emulsion, autoradiography of ... Feb 286
powder metallurgy ... Jan 49
precipitation from salt solution ... May 695
radiation damage ... Oct 1362
Method for Spectrochemical Determination of Aluminum in Fe-Al Alloys ... Dec 1674
Microcalorimetric Investigation of the Recrystallization of Copper. Discussion ... May 618
Microstructure:
Microstructural Differences in Tempered Titanium Alloys ... Aug 961
alloy steels ... June 780
α titanium ... Oct 1235
Bi-Mn system ... May 610
cold-worked Al-Mg ... Oct 1249
effect finishing temperatures of steel ... Sep 1172
electrodeposits ... Sep 1193
fabricated thorium powders ... Apr 452
ferrite ... Oct 1219
flake formation steel. Discussion ... Oct 1404
hydrogenated vanadium ... Oct 1213
inclusions in uranium ... Apr 457
intercrystalline fracture ... May 545
discussion ... Oct 1416
iodide zirconium ... Oct 1305
low alloy steels ... Aug 1009
low manganese steels ... Dec 1668
magnesium ... Aug 937
Mg-Al ... Feb 146
discussion ... Oct 1410
Mg-U system ... May 565
palladium ... Aug 1030
properties Ti-Mo ... Oct 1388
retained β-phase, Ti-Ni ... May 515

silicon iron ... Aug 903
sublimation figures ... May 516
Th-Cb, Th-Ti ... Feb 133
Ti-Au ... Aug 931
Ti-Fe ... May 521
Ti-Fe, Ti-Fe-O ... May 574
discussion ... Oct 1417
Ti-Mo-O system ... May 598
Ti-Mo-V ... May 492
U-Zr system ... Oct 1313
Zr-N alloys ... Feb 101
Microstructure of Iron-Sulfur Alloys ... Aug 950
Miller, O. O., and Sands, J. W.: *Some Aspects of Hardenable Alloy Steels* ... June 770
Miller, R. H., and Ingvalson, L. J.: *Great Falls Billet Plant* ... Dec 1661
Minerals:
flocculation ... Aug 1092
Modernization of Bunker Hill Presintering Practices ... Oct 1469
Molybdenite:
kinetics of leaching ... June 794
Molybdenum:
χ phase, Cr-Ni-Mn-Mo ... Feb 210
effect, rupture strength steel ... Oct 1373
influences on ductility ... Feb 150
neutron diffraction, annealed ... Oct 1259
oxidation-resistant alloys ... Feb 171
properties Ti-Mo ... Oct 1388
structural changes on cold rolling ... Oct 1298
structural stability, Ti-Mo-V ... May 491
system Ti-V-Mo ... Aug 959
Ti-Mo-O ... May 595
titanium alloys ... June 790
Mondolfo, L. F., Glostein, N. A., and Levinson, D. W.: *Structural Changes During the Aging in an Al-Mg-Zn Alloy* ... Oct 1378
Morgan, E. R., Shyne, J. C., and Zackay, V. F.: *Production of High Nitrogen Steels* ... Feb 216
Morgan, J. A., and McCabe, C. L. *Mechanism of Sulfate Formation During the Roasting of Cuprous Sulfide* ... June 800A
Morris, J. P., and Zellars, G. R.: *Vapor Pressure of Liquid Copper and Activities in Liquid Fe-Cu Alloys* ... Aug 1086
Moskowitz, D.: *New Vanadium Boride of the Composition VB_4* ... Oct 1325
Mossman, H. W.: *Magnetite in the Hurley Copper Smelter* ... Sep 1182

N

Nelson, B. J.: *Effect of Gallium on Resistance to Corrosion of Magnesium Alloys* ... Oct 1354
Neurath, P. W.: *Effect of Plastic and Elastic Stresses on the Losses and the Domain Configurations of Grain-Oriented 3 Pct Si-Fe* ... Oct 1319
Neutron Diffraction Study of Annealing Textures in Drawn Body-Centered-Cubic Metals ... Oct 1259
New Intermediate Phase in Burnt Tungsten Steels ... Feb 97
New Vanadium Boride of the Composition VB_4 ... Oct 1325
Nicholson, M. E.: *Influence of Boron on the Rate of Transformation of High Purity Iron* ... May 551
discussion ... Oct 1409
Nickel:
bainite transformation ... Aug 989
base, solid solutions ... May 567
χ phase, Cr-Ni-Mn-Mo ... Feb 210
creep polycrystalline ... Oct 1223
cube textures, Ni-Fe ... May 593
electrical properties, manganin-type alloys ... Feb 203
ferromagnetic alloys ... Oct 1295
magnetic interactions, Fe-Ni-Al ... Oct 1285
martensite transformation ... Feb 124
martensitic transformation Fe-Ni ... Oct 1393
metastable phase, Fe-Ni ... May 585
Ni-Cr-Ti-Al ... Oct 1356
orientation, Ti-Ni ... Aug 892
oxygen in liquid Fe-Ni ... Sep 1195
phase transformations, Ti-Ni ... May 531
retained-β phase, Ti-Ni ... May 514
self-diffusion in solid ... May 483
sublimation figures ... May 515
Nitrides:
uranium ... Feb 78
Nitrogen:
Cr-N terminal solid solution ... May 556
diffusion in iron ... May 686
effect on ductility, cast molybdenum ... Feb 150
solubility in molten steel ... Aug 1099
steels, high ... Feb 216
system Zr-N ... Feb 98
Nonmetallics:
metallographic, identification ... Apr 456
Nonoctahedral Slip in Aluminum ... Oct 1344
Norton, J. T.: *Interaction Between Metals and Atmospheres During Sintering* ... Jan 49
discussion ... Jan 51
Nowak, S. K.: *Solid Solubility of Lithium in Aluminum* ... May 553
Nuclear metallurgy:
diffusion coefficients in solids ... Oct 1341
expansion coefficients, uranium ... Oct 1282
internal friction, silver ... Aug 993
low manganese steels for ... Dec 1664
neutron diffraction, annealed metals ... Oct 1259
nonmetallic inclusions in uranium ... Apr 456
radiation damage metals ... Oct 1362
resistivity, lifetime in semiconductors ... May 612
self-diffusion, magnesium ... Aug 918
solidification Al-Zn ... Aug 972
Nucleation:
ferrite ... Oct 1216
martensite transformation ... Feb 124
σ, stainless steels ... May 600

O

Observations on Mechanical Properties of Hydrogenated Vanadium ... Aug 1213
Observations on the Brittle Fracture of Cemented Titanium Carbide ... Aug 982
Occurrence of Chi Phase in a 16 Pct Cr-15 Pct Ni-7 Pct Mn-6 Pct Mo Alloy ... Feb 210
Occurrence of CsCl-Type Ordered Structures in Certain Binary Systems of Transition Elements ... Feb 148
Ogden, H. R., Jaffee, R. I., and Holden, F. C.: *Heat Treatment and Mechanical Properties of Ti-Fe Alloys* ... May 521
Heat Treatment and Mechanical Properties of Ti-Mo Alloys ... Oct 1388
Ojala, T., Elbaum, C., and Winegard, W. C.: *Nonoctahedral Slip in Aluminum* ... Oct 1344
Olds, L. E., and Rengstorff, G. W. P.: *Effects of Oxygen, Nitrogen, and Carbon on the Ductility of Cast Molybdenum* ... Feb 150
Ollar, A., Starliper, A. G., and Kenworthy, H.: *Separation of Germanium and Cadmium from Zinc Concentrates by Fuming* ... May 682
Ong, Jr., J. N. Wadsworth, M. E., and Fasselt, W. M., Jr.: *Kinetic Study of the Oxidation of Sphalerite* ... Feb 257
On the Ordering Effects in the Corrosion of Cu_3Au by Aqueous Ferric Chloride ... Oct 1340
On the Rate of Sintering ... May 580
correction ... Oct 1289
On the Relationship Between Resistivity and Lifetime in Semiconductors ... May 612
On the Use of Lineal Analysis for Obtaining Particle Size Distribution Functions in Opaque Samples ... May 610
Open hearth furnaces:
equilibria, slags ... July 862
hydrogen in slags ... Nov 1573
low manganese steels, nuclear applications ... Dec 1664
Opie, W. R.: *Basal Plane Development in Electro-deposited Hexagonal-Close-Packed Metals: Zinc, Titanium, and Zirconium* ... Sep 1192
Order:
corrosion Cu_3Au ... Oct 1340
disorder, Fe-Si ... Oct 1290
influence, disorder, β brass ... May 604
discussion ... Oct 1409
long-range, and dislocations ... Oct 1353
Oriani, R. A., and Seybolt, A. U.: *Pressure-Temperature-Composition Relations in the Cr-N Terminal Solid Solution* ... May 556
Orientation:
grain, Si-Fe ... Oct 1319
interfacial energies, silver ... Aug 1026
lineal analysis, opaque samples ... May 610
magnet alloys ... Aug 962
martensitic transformation, titanium ... Aug 1036
recrystallization, aluminum ... May 517
discussion ... Oct 1413
rolled, annealed titanium ... Feb 80
structural changes, molybdenum ... Oct 1298
Zr-Cb alloy ... Feb 122
Orientation Relationships Between Alpha Prime and Beta Phases in a Ti-Ni Alloy ... Aug 892
Oxidation:
copper, Cu_3Au ... Oct 1277
growth copper layers during ... Oct 1252
kinetics, galena ... Aug 1096
resistant, molybdenum alloys ... Feb 171
sphalerite ... Feb 257
sulphur on surface tensions ... Jan 59
Oxides:
calculated surface tension ... Jan 57
iron in slags ... Oct 1474
reduction in slags, Discussion ... Oct 1403
transformation, TiO ... Feb 184
Oxygen:
in cupola-melted cast iron ... Dec 1670
effect on ductility, cast molybdenum ... Feb 150
equilibria in reactions ... Nov 1558
equilibria with sulfur, slags ... July 862
pressure, kinetics, oxidation of galena ... Aug 1096
Ti-Fe-O phases ... May 572
discussion ... Oct 1417
Ti-Mo-O ... May 595
Oxygen in Liquid Iron-Nickel Alloys ... Sep 1195

P

Palladium:
gases on fabrication of ... Aug 1029
Papazian, H., and Lad, R. A: *On the Ordering Effects in the Corrosion of Cu_3Au by Aqueous Ferric Chloride* ... Oct 1340
Parameters:
Ti-V-Mo, β phase ... Aug 959
Parr, J. G., and Polonis, D. H.: *Orientation Relationships Between Alpha Prime and Beta Phases in a Ti-Ni Alloy* ... Aug 892
Phase Transformations in Titanium-Rich Alloys of Nickel and Titanium ... May 531
Substructures in Retained-Beta Phase of Ti-Ni Alloys ... May 514
Parr, J. G., Macgregor, E. R., and Peters, B. F.: *Phase Transformations in Titanium-Rich Alloys of Titanium and Manganese* ... Oct 1324
Parr, J. G., Saarema, E., and Howe, L. M.: *Precipitation Hardening in a Ti-Cu Alloy* ... May 512
Particles:
size, lineal analysis, opaque samples ... May 610
TiC skeletons ... Aug 977
Paxton, H. W., and Busby, C. C.: *Strain Aging of AISI 4340* ... June 788
Pearson, S., and Rotherham, L.: *Internal Friction and Grain Boundary Viscosity of Copper and of Binary Copper Solid Solutions* ... Aug 881
Internal Friction and Grain Boundary Viscosity of Silver and Binary Silver Solid Solutions ... Aug 894
Perkins, F. C., Rosi, F. D., and Seigle, L. L.: *Mechanism of Plastic Flow in Titanium at Low and High Temperatures* ... Feb 115
Perryman, E. C. W.: *Recovery of Cold Worked High Purity Al-Mg Alloys* ... Oct 1247
Relationship Between Recovery and Recrystallization in Superpurity Aluminum. Discussion ... May 618
Peters, B. F., Parr, J. G., and Macgregor, E. R.: *Phase Transformations in Titanium-Rich Alloys of Titanium and Manganese* ... Oct 1324
Petersen, A. W., and Bromley, L. A.: *Preparation of Metallic Titanium by Film Boiling* ... Feb 284
Phase diagrams:
Bi-Mn system ... May 606
discussion ... Oct 1406
debismuthizing of lead ... Mar 341
magnetic interactions, Fe-Ni-Al ... Oct 1285
Ni-Cr-Ti-Al ... Oct 1356
partial constitution, Ti-$TiAu_2$ ... Aug 930
solid Fe-Au ... Feb 91
structural stability, Ti-Mo-V ... May 491
system Zr-N ... Feb 98
Th-Cb, Th-Ti ... Feb 132
Ti-Mo-O system ... May 595
U-Zr system ... Oct 1312
Zr-Cb. Discussion ... May 619
Zr-H ... May 528
Phases:
burnt tungsten steel ... Feb 97
χ, Cr-Ni-Mn-Mo ... Feb 210
chromium, β ... Aug 975
Cr-Fe, α-σ transformation ... May 614
crystal structure, plutonium ... Oct 1256
Cs-Cl-type ordered structures ... Feb 148
diffusion on creep, α, γ, iron ... Aug 928
expansion coefficients, α uranium ... Oct 1282
Fe-Si, Fe-Si-Ti, γ loop ... Oct 1345
hydrogen, titanium ... Oct 1435
intermediate, U-Zr ... Oct 1312
martensitic transformation Fe-Ni ... Oct 1393
matrix in bainite, martensite ... Oct 1484
metastable, Fe-Ni ... May 585
orientation, Ti-Ni ... Aug 892
properties Ti-Mo ... Oct 1388
σ nucleation, stainless steels ... May 600
substructures, retained β, Ti-Ni ... May 514
titanium, β-stable ... Aug 923
Ti-Fe, Ti-Fe-O ... May 572
discussion ... Oct 1417
Ti-V-Mo, β parameters ... Aug 959
transformations, Ti-Ni ... May 531
transformation, TiO ... Feb 184
Phase transformations:
dilatometer for study ... Feb 191
nickel, titanium ... May 531
precipitation, supersaturated solid solutions ... May 673
Ti-rich corner, Ti-Al-V ... Feb 211
discussion ... Oct 1420
Phase Transformations in Titanium-Rich Alloys of Nickel and Titanium ... May 531
Phase Transformations in Titanium-Rich Alloys of Titanium and Manganese ... Oct 1324
Philbrook, W. O., and Kirkbride, L. D.: *Rate of FeO Reduction from a CaO-SiO_2-Al_2O_3 Slag by Carbon-Saturated Iron* ... Mar 351
discussion ... Oct 1403
Phosphorus:
Great Falls billet plant ... Dec 1661
Pietrokowsky, P., Frink, E. P., and Duwez, P.: *Investigation of the Partial Constitution Diagram Ti-$TiAu_2$* ... Aug 930
Pikus, F. W., Ward, R. A., and Hoffman, R. E.: *Self-Diffusion in Solid Nickel* ... May 483
Planes:
basal, development ... Sep 1192
Plastic Anisotropy of Zinc Monocrystals ... Oct 1326
Plutonium:
crystal structure, phases ... Oct 1256
Pollock, D. D., and Finch, D. I.: *Effects of Alloying Elements on the Electrical Properties of Manganin-Type Alloys* ... Feb 203
Polonis, D. H., and Parr, J. G.: *Orientation Relationships Between Alpha Prime and Beta Phases in a Ti-Ni Alloy* ... Aug 892
Phase Transformations in Titanium-Rich Alloys of Nickel and Titanium ... May 531
Substructures in Retained-Beta Phase of Ti-Ni Alloys ... May 514
Porosity:
strain-induced, zirconium ... May 536
Powder metallurgy:
brittle fracture, TiC ... Aug 982

density distribution, compacts Feb 215
embrittlement, chromized coatings on steel. Discussion May 616
fabrication of thorium Apr 445
martensite transformation Feb 124
reactions during sintering Jan 49
retained-β phase, Ti-Ni May 514
sintering May 580
TiC skeletons Aug 977
Powder Metallurgy Symposium, 1955 Jan 49
Powers, A. E.: *Effect of Mo, W, and V on the High Temperature Rupture Strength of Ferritic Steel* Oct 1373
Possible Role of Diffusion in the Creep of Alpha and Gamma Iron Aug 928
Pound, G. M., Derge, G., and Yang, L.: *Mechanism of Electrical Conduction in Molten Cu S-Cu Cl and Mattes* June 783
metal from salt solution May 695
polyelectrolytes Aug 1092
Precipitation:
and creep, Mg-Al Feb 146
discussion Oct 1410
Precipitation Hardening in a Ti-Cu Alloy May 512
Precipitation of Metal from Salt Solution by Reduction with Hydrogen May 695
Predicting the Solubility of Nitrogen in Molten Steel Aug 1099
Preferred Orientations and Magnetic Properties of Rolled and Annealed Permanent Magnet Alloys Aug 962
Preferred Orientations in a Metal-Stable Body-Centered-Cubic Zr-Cb Alloy Feb 122
Preferred Orientations in Rolled and Annealed Titanium Feb 80
Preparation of Metallic Titanium by Film Boiling Feb 284
Preprecipitation Phenomena in Supersaturated Solid Solutions May 673
Pressure-Temperature-Composition Relations in the Cr-N Terminal Solid Solution May 556
Pressure:
measurements, sulfur May 693
Primary Recrystallization Textures in Cold Rolled Si-Fe Crystals Aug 1017
Production of High Nitrogen Steels Feb 216
Properties:
Cr-N terminal solid solution May 556
effect carbon on, Ti-Mo alloys June 790
electrical properties:
manganin-type alloys Feb 203
high nitrogen, steels Feb 216
influence on steel, silicon, aluminum Oct 1269
low carbon sheet coils Sep 1169
magnetic, magnet alloys Aug 962
mechanical properties:
α titanium Oct 1235
fabricated thorium powders Apr 445
hydrogenated vanadium Oct 1213
strain rate, tungsten Feb 142
Ti-Fe May 521
Ti-Mo Oct 1388
Ti-36 pct Al Oct 1348
metal radiation damage Oct 1362
Mg-U system May 562
recovery, Al-Mg Oct 1247
rhenium Aug 913
solid Fe-Au Feb 91
tensile, magnesium Aug 936
Purification:
metallic titanium by film boiling Feb 284
Purification of $GeCl_4$ by Extraction with HCl and Chlorine May 688
Pyrometallurgy:
debismuthizing of lead Mar 341
recovery from zinc concentrates May 684

Q

Quaternary alloys, see alloys
Quenching:
dilatometer Feb 191

R

Radiation:
damage to metals Oct 1362
Radioactivity:
self-diffusion, Mg Aug 918
tracer techniques May 690
Ramachandran, S., King, T. B., and Grant, N. J.: *Rate and Mechanism of the Sulfur Transfer Reaction* Nov 1549
Raring, R. H., and Martin, F. E.: *High Speed Quenching Dilatometer* Feb 191
Rate and Mechanism of the Sulfur Transfer Reaction Nov 1549
Rate of FeO Reduction from a CaO-SiO_2-Al_2O_3 Slag by Carbon-Saturated Iron Mar 351
discussion Oct 1403
Rausch, J. J., Crossley, F. A., and Kessler, H. D.: *Titanium-Rich Corner of the Ti-Al-V System* Feb 211
discussion Oct 1420
Reaction Zones in the Iron Ore Sintering Process July 853
Recent Developments in Electrolytic Copper Refining Aug 1081
Recovery:
phenomena, aluminum Oct 1226
recrystallization, aluminum. Discussion May 618
Recovery of Cold Worked High Purity Al-Mg Alloys Oct 1247
Recrystallization:
aluminum single crystals May 517
discussion Oct 1413
copper. Discussion May 618
deformation and, Si-Fe Aug 901
grain grow rates in May 504
discussion Oct 1413
recovery, aluminum. Discussion May 618
silicothermic Aug 1111
textures, Si-Fe Aug 1017
with hydrogen, precipitation metal from salt solution May 695
Recrystallization and Grain Growth in Iodide Zirconium Oct 1304
Recrystallization of Zone-Melted Aluminum Aug 958
Re-Examination of Ti-Fe and Ti-Fe-O Phase Relations May 572
discussion Oct 1417
Refining:
recent developments, electrolytic copper Aug 1081
Refractories:
silicothermic reduction of magnesia Aug 1111
Reiss, H., and Fuller, C. S.: *Influence of Holes and Electrons on the Solubility of Lithium in Boron-Doped Silicon* Feb 276
Relation of Flake Formation in Steel to Hydrogen, Microstructure, and Stress. Discussion Oct 1404
Relationship between Recovery and Recrystallization in Superpurity Aluminum. Discussion May 618
Relative Interfacial Energies of Symmetrical Tilt Grain Boundaries in Silver Aug 1026
Removal of Boron from Silicon by Hydrogen Water Vapor Treatment Oct 1316
Rengstorff, G. W. P.: *Search for Oxidation-Resistant Alloys of Molybdenum* Feb 171
Rengstorff, G. W. P., and Olds, L. E.: *Effects of Oxygen, Nitrogen, and Carbon on the Ductility of Cast Molybdenum* Feb 150
Resistivity:
and lifetime, semiconductors May 612
Rhenium:
properties Aug 913
Ripling, E. J.: *Hydrogen Embrittlement of a Commercial Alpha-Beta Titanium Alloy* May 502
Ripling, E. J., and Toaz, M. W.: *Correlation of the Tensile Properties of Pure Magnesium and Four Commercial Alloys with Their Mode of Fracturing* Aug 936
Roasting:
cuprous sulfide June 800A
equilibrium considerations Aug 1105
Roberts, B. W., and Rogers, H. C.: *Observations on Mechanical Properties of Hydrogenated Vanadium* Aug 1213
Roberts, B. W. et al.: *Contribution to the Bi-Mn System* May 606
discussion Oct 1406
Roberts, C. S.: *Interaction of Precipitation and Creep in Mg-Al Alloys* Feb 146
discussion Oct 1410
Robertson, W. D., and Bakish, R.: *Structure Dependent Chemical Activity of Polycrystalline Cu-Au—Experiments Relating to the Mechanism of Stress-Corrosion Cracking of Homogeneous Solid Solutions* Oct 1277
Robinson, E. L., and Goettge, D. T.: *Some Effects of Hot Strip Mill Rolling Temperatures on Properties of Low Carbon Sheet Coils* Sep 1169
Roesler, U. H.: *Study of Ferrous Ternary Diagrams in Relation to Magnetic Interactions: Fe-Ni-Al System* Oct 1285
Rogers, B. A., and Atkins, D. F.: *Zirconium-Columbium Diagram.* Discussion May 619
Rogers, H. C., and Roberts, B. W.: *Observations on Mechanical Properties of Hydrogenated Vanadium* Aug 1213
Rolling:
magnet alloys Aug 962
Rolling, see also Fabrication.
Rosenqvist, T., and Ellingsaeter, B.: *Silicothermic Reduction of Magnesia and Ferrosilicon Activities* Aug 1111
Rosenthal, P. C., and Bokros, J. C.: *Liquid Emulsion Autoradiography of Metals* Feb 286
Rosi, F. D., Perkins, F. C., and Seigle, L. L.: *Mechanism of Plastic Flow in Titanium at Low and High Temperatures* Feb 115
Rostoker, W., Yamamoto, A., and Levinson, D. W.: *Effect of Carbon on some Properties of Ti-Mo Alloys* June 790
Rotherham, L., and Pearson, S.: *Internal Friction and Grain Boundary Viscosity of Copper and of Binary Copper Solid Solutions* Aug 881
Internal Friction and Grain Boundary Viscosity of Silver and Binary Silver Solid Solutions Aug 894
Rothman, S. J., and Hall, L. D.: *Diffusion in a Molten Bi-0.25 Atomic Pct Pb Alloy* Nov 1580
Diffusion in Liquid Lead Feb 199
discussion Oct 1408
Runge, E. F., and Bryan, F. R.: *Method for Spectrochemical Determination of Aluminum in Fe-Al Alloys* Dec 1674
Rupture:
creep, by vacancy condensation Feb 106
strength ferritic steel Oct 1373
Russell, R. B.: *Crystallographic Angles for Orthorhombic (Alpha) Uranium.* Addendum Oct 1408
Rutter, J. W., et al.: *Instability of a Smooth Solid-Liquid Interface during Solidification.* Discussion May 617

S

Saarema, E., Howe, L. M., and Parr, J. G.: *Precipitation Hardening in a Ti-Cu Alloy* May 512
Sachs, G., Beck, W., and Kliger, E. P.: *Constant Strain Rate Bend Tests on Hydrogen-Embrittled High Strength Steels* Oct 1263
St. Pierre, G. R., and Chipman, J.: *Sulfur Equilibria between Gases and Slags containing FeO* Oct 1474
Salkovitz, E. I.: *Crystallographic Angles for Bismuth and Antimony* Feb 176
Salt:
solution, precipitation metal from May 695
Samans, C. H., Tisiani, G. F., and Stanley, J. K.: *Sigma Nucleation Times in Stainless Steels* May 600
Samis, C. S., and Seraphim, D. P.: *Kinetics of the Oxidation of Galena in Ammonium Acetate Solutions under Oxygen Pressure* Aug 1096
Sands, J. W., and Miller, O. O.: *Some Aspects of Hardenable Alloy Steels* June 770
Schaufelberger, F. A.: *Precipitation of Metal from Salt Solution by Reduction with Hydrogen* May 695
Schwartz, C. M., Vaughan, D. A., and Bridge, J. R.: *X-Ray Diffraction Determination of the Coefficients of Expansion of Alpha Uranium* Oct 1282
Search for Oxidation-Resistant Alloys of Molybdenum Feb 171
Seigle, L. L.: *Thermodynamic Properties of Solid Fe-Au Alloys* Feb 91
Seigle, L. L., Rosi, F. D., and Perkins, F. C.: *Mechanism of Plastic Flow in Titanium at Low and High Temperatures* Feb 115
Self-diffusion, see Diffusion.
Self-Diffusion in Magnesium Single Crystals Aug 918
Self-Diffusion in Single and Polycrystals of Zinc at Low Temperatures Feb 164
Self-Diffusion in Solid Nickel May 483
Self-Diffusion of Iron in Austenite Oct 1336
Self-Diffusion of Iron in Molten Fe-C Alloys Nov 1577
Semiconductors:
disiocations, germanium Aug 946
mathematics zone melting. Discussion May 615
purification of $GeCl_4$ May 688
recrystallization, zone-melted aluminum Aug 958
removal, boron from silicon Oct 1316
resistivity, lifetime May 612
solubility, lithium in boron-doped silicon Feb 276
Separation of Germanium and Cadmium from Zinc Concentrates by Fuming May 682
Seraphim, D. P., and Samis, C. S.: *Kinetics of the Oxidation of Galena in Ammonium Acetate Solutions under Oxygen Pressure* Aug 1096
Seybolt, A. U., and Oriani, R. A.: *Pressure-Temperature-Composition Relations in the Cr-N Terminal Solid Solution* May 556
Seybolt, A. U., et al.: *Contribution to the Bi-Mn System* May 606
discussion Oct 1406
Seymour, W. E., and Holden, A. N.: *Intermediate Phase in the Uranium-Zirconium System* Oct 1312
Shahinian, P., and Weertman, J.: *Creep of Polycrystalline Nickel* Oct 1223
Shepard, L. A., and Dorn, J. E.: *Delayed Yielding in a Substitutional Solid Solution Alloy* Oct 1229
Sherby, O. D., and Lytton, J. L.: *Possible Role of Diffusion in the Creep of Alpha and Gamma Iron* Aug 928
Sherby, O. D., Dorn, J. E., and Huang, H. I-L.: *Activation Energy for High Temperature Creep of High Purity Aluminum* Oct 1385
Shewmon, P. G.: *Self-Diffusion in Magnesium Single Crystals* Aug 918
Shortsleeve, F. J., Troiano, A. R., and Dana, A. W., Jr.: *Relation of Flake Formation in Steel to Hydrogen, Microstructure, and Stress.* Discussion Oct 1404
Shyne, J. C., Morgan, E. R., and Zackay, V. F.: *Production of High Nitrogen Steels* Feb 216
Sibakin, J. G., and Ikeda, G. M.: *Factors Affecting Coiling Temperatures in the Hot Strip Mill* Sep 1174
Sigma Nucleation Times in Stainless Steels May 600
Silicates:
liquid iron, radioactivity May 690
surface tension studies Jan 53
Silicon:
boron-doped, solubility of lithium in Feb 276
deformation, recrystallization Si-Fe Aug 901

Fe-Si, Fe-Si-Ti, γ loop ... Oct 1345
Fe-Si order-disorder ... Oct 1290
grain-oriented Si-Fe ... Oct 1319
influence on properties, steel ... Oct 1269
recrystallization textures, Si-Fe ... Aug 1017
removal boron from ... Oct 1316
resistivity, lifetime, semiconductors ... May 612
Silicothermic Reduction of Magnesia and Ferrosilicon Activities ... Aug 1111
Silver:
grain boundary mobilities ... May 513
grain boundary viscosity ... Aug 894
interfacial energies ... Aug 1026
internal friction ... Aug 993
Silverman, R., and Blumenthal, H.: *Infiltration of TiC Skeletons* ... Aug 977
Simcoe, C. R., Elsea, A. R., and Manning, G. K.: *Further Work on the Boron-Hardenability Mechanism* ... Aug 984
Simnad, M. T., Yang, L., and Derge, G.: *Direct Measurement of Ferrous Ion Mobility in Liquid Iron Silicate by a Radioactive Tracer Technique* ... May 690
Self-Diffusion of Iron in Molten Fe-C Alloys ... Nov 1577
Sims, C. T., and Jaffee, R. I.: *Further Studies of the Properties of Rhenium Metal* ... Aug 913
Sintering:
interaction between metals, atmospheres ... Jan 49
pre, Bunker Hill Co. practices ... Oct 1469
rate of ... May 580
reaction zones, iron ore ... July 853
Slags:
activity coefficient of copper ... Aug 1102
diffusion, iron in Fe-C ... Nov 1577
electrical conduction in ... June 873
equilibria in reactions, solubility ... Nov 1558
equilibria, open-hearth type ... July 862
ferrous ion mobility ... May 690
hydrogen in steelmaking ... Nov 1568
methods of surface tension ... Jan 53
rate of FeO reduction ... Mar 351
reduction. Discussion ... Oct 1403
sulfur equilibria ... Oct 1474
sulfur on surface tensions ... Jan 59
sulfur transfer reaction ... Nov 1549
Slip:
nonoctahedral, aluminum ... Oct 1344
Smelters, smelting:
magnetite in Hurley copper ... Sep 1182
Smith, R. L., and Jaumot, F. E., Jr.: *Comparison of Techniques in a Study of Zinc Self-Diffusion* ... Feb 137
Self-Diffusion in Single and Polycrystals of Zinc at Low Temperatures ... Feb 164
Solidification, solids:
Al-Cu, Al-Zr. Discussion ... May 619
diffusion coefficients in ... Oct 1341
filtering apparatus for study ... Feb 263
instability, interface. Discussion ... May 617
metastable phase, Fe-Ni ... May 585
Solidification of Aluminum-Zinc Alloys ... Aug 972
Solid Solubility of Lithium in Aluminum ... May 553
Solid solutions, solid solubility:
aluminum in Fe-Al ... Dec 1674
aluminum, plastic deformation ... May 477
Cr-N terminal ... May 556
friction, viscosity, silver ... Aug 894
grain boundary viscosity, copper ... Aug 881
nonogeneous, stress-corrosion ... Oct 1277
internal friction, silver-base ... Aug 993
nickel-base substitutional ... May 567
nickel self-diffusion ... May 483
precipitation phenomena in supersaturated ... May 673
properties, Fe-Au ... Feb 91
yielding, alloy ... Oct 1229
Solubility:
hydrogen in slags ... Nov 1568
lithium in boron-doped silicon ... Feb 276
nitrogen in molten steel ... Aug 1099
oxygen in liquid iron ... Nov 1558
Solute Diffusion in Nickel-Base Substitutional Solid Solutions ... May 567
Some Aspects of Hardenable Alloy Steels ... June 770
Some Effects of Hot Strip Mill Rolling Temperatures on Properties of Low Carbon Sheet Coils ... Sep 1169
Some Observations on the Structure of Grain Boundary Fracture Surfaces ... Oct 1241
Some Studies of Al-Cu and Al-Zr Solid State Bonding. Discussion ... May 619
Some Transient Effects During Creep and Tensile Tests of an Aluminum Alloy ... May 497
Specimen preparation:
chemical polishing, zinc ... May 511
Speiser, R., Spretnak, J. W., and Goldhoff, R. M.: *Effect of Prolonged Heating at High Temperature on the Hardenability of Boron-Treated Steels* ... Aug 1091
Sphalerites:
oxidation of ... Feb 257
Sprays:
system, hot strip mill ... Sep 1176
Spretnak, J. W., Goldhoff, R. M., and Speiser, R.: *Effect of Prolonged Heating at High Temperature on the Hardenability of Boron-Treated Steels* ... Aug 1091
Spretnak, J. W., Jaffee, R. I., and Lenning, G. A.: *Effect of Hydrogen on Alpha Titanium Alloys* ... Oct 1235
Stanley, J. K., Samans, C. H., and Tisinai, G. F.: *Sigma Nucleation Times in Stainless Steels* ... May 600
Stansbury, E. E., Frye, J. H., Jr., and Holder, S. G., Jr.: *Internal Friction Studies on Silver and Certain Silver-Base Solid Solutions* ... Aug 993
Stariper, A. G., Kenworthy, H., and Oliar, A.: *Separation of Germanium and Cadmium from Zinc Concentrates by Fuming* ... May 682
Steel:
bainite transformation ... Aug 989
boron-hardenability mechanism ... Aug 984
boron-treated, hardenability ... Aug 1091
embrittlement, chromized coatings. Discussion ... May 616
equilibria, slags ... July 862
ferrite nucleation ... Oct 1216
ferritic, rupture strength ... Oct 1373
flake formation. Discussion ... Oct 1404
hardenability, low alloy ... Aug 1008
hardenable alloy ... June 770
hot rolled, properties ... Oct 1269
intermediate phases, burnt ... Feb 97
low manganese, nuclear applications ... Dec 1664
matrix phases in bainite, martensite ... Oct 1484
oxygen in liquid Fe-Ni ... Sep 1195
production, high nitrogen ... Feb 216
reduction in slags. Discussion ... Oct 1403
shrinkage cavity, reheating ... Sep 1199
σ nucleation, stainless ... May 600
solubility of nitrogen in molten ... Aug 1099
strain aging ... June 788
strain rate, hydrogen-embrittled ... Oct 1263
Steelmaking:
coiling temperatures, hot strip mills ... Sep 1174
diffusion, iron in Fe-C ... Nov 1577
FeO reduction in slags ... Mar 351
hot strip mill rolling temperature ... Sep 1169
slags, hydrogen in ... Nov 1568
solubility, equilibria, slags ... Nov 1558
sulfur equilibria, slags and gases ... Oct 1474
sulfur transfer reaction ... Nov 1549
surface structure containing sulphur ... Jan 59
surface tension, molten silicates ... Jan 53
Stockman, C. H., Dillon, I. G., and Burris, L.: *Contribution to Mathematics of Zone Melting.* Discussion ... May 615
Stone, L. P., Margolin, H., and Farrar, P. A.: *Titanium-Molybdenum-Oxygen System* ... May 595
Storchheim, S.: *Some Studies of Al-Cu and Al-Zr Solid State Bonding.* Discussion ... May 619
Strain:
aluminum alloy ... May 497
embrittlement, α-β titanium ... May 502
molybdenum, tensile deformation ... Feb 178
discussion ... Oct 1420
rates, hydrogen-embrittled steels ... Oct 1263
Strain Aging of AISI 4340 ... June 788
Strain-Induced Porosity and Hydrogen Embrittlement in Zirconium ... May 536
Strain Rate Effects in Tungsten ... Feb 142
Strength:
rupture, ferritic steel ... Oct 1373
strain aging, AISI 4340 ... June 788
tensile, sintering ... May 580
Stress:
corrosion cracking, CuAu ... Oct 1277
creep, aluminum ... Oct 1365
creep, polycrystalline nickel ... Oct 1223
flake formation steel. Discussion ... Oct 1404
molybdenum, tensile deformation ... Feb 178
discussion ... Oct 1420
plastic, elastic, Si-Fe ... Oct 1319
tensile creep, aluminum ... Feb 195
discussion ... Oct 1419
yielding, solid solution alloy ... Oct 1229
Strip mills:
coiling temperatures in hot ... Sep 1174
effects of temperatures ... Sep 1169
Structural Changes During the Aging in an Al-Mg-Zn Alloy ... Oct 1378
Structural Changes in Molybdenum Single Crystals Due to Cold Rolling ... Oct 1298
Structure:
crystal, plutonium phases ... Oct 1256
grain boundary fracture surfaces ... Oct 1241
hydrogen tolerance, titanium alloys ... Aug 923
sulphur on surface tensions ... Jan 59
Structure Dependent Chemical Activity of Polycrystalline Cu-Au—Experiments Relating to the Mechanism of Stress-Corrosion Cracking of Homogeneous Solid Solutions ... Oct 1277
Study of Ferrous Ternary Diagrams in Relation to Magnetic Interactions: Fe-Ni-Al System ... Oct 1385
Study of the Effect of Gases on the Melting, Casting, and Working of a Palladium ... Aug 1029
Study of the Fe-Si Order-Disorder Transformation ... Oct 1290
Sublimation Figures in Nickel, Copper, and Zinc ... May 515
Substructures in Retained-Beta Phase of Ti-Ni Alloys ... May 514
Sulfides:
cuprous, roasting of ... June 806A
equilibrium considerations in roasting ... Aug 1105
sulfur pressure measurements ... May 693
Sulfur:
elimination, copper smelting ... Sep 1182
embrittlement of cobalt ... May 578
equilibria with oxygen, slags ... July 862
microstructure Fe-S ... Aug 950
surface tension measurements ... Jan 59
transfer reaction ... Nov 1549
Sulfur Embrittlement of Cobalt ... May 578
Sulfur Equilibria between Gases and Slags containing FeO ... Oct 1474
Sulfur Pressure Measurements above FeS in Equilibrium with Iron ... May 693
Suoninen, E. J., Genevray, R. M., and Bever, M. B.: *Effect of Stress on the Martensitic Transformation in the Cu-Zn System* ... Feb 283
Surface Structure of Nonoxidizing Slags Containing Sulphur ... Jan 59
Surface Tensions of Silicates ... Jan 53
Swalin, R. A., and Geisler, A. H.: *Neutron Diffraction Study of Annealing Textures in Drawn Body-Centered-Cubic Metals* ... Oct 1259
Swalin, R. A., and Martin, A.: *Solute Diffusion in Nickel-Base Substitutional Solid Solutions* ... May 567
Sympathetic Nucleation of Ferrite ... Oct 1216
System Zirconium-Nitrogen ... Feb 98

T

Tankhouses:
schedule, copper refinery ... Aug 1082
Tapping:
Hurley copper smelter ... Sep 1182
Taylor, A.: *Constitution of Nickel-Rich Quaternary Alloys of the Ni-Cr-Ti-Al System* ... Oct 1356
Taylor, J. L.: *Beta Phase Parameters in the System Ti-V-Mo* ... Aug 959
Temperature:
activity, copper in Fe-Cu ... Aug 1086
activity, copper in liquid iron ... Aug 1024
alloys, Ti-36 pct Al ... Oct 1348
annealing, cube texture ... Aug 967
bainite transformation ... Aug 989
β chromium ... Aug 975
brittle fracture, TiC ... Aug 982
coiling, hot strip mill ... Sep 1174
creep, aluminum ... Oct 1365
creep, polycrystalline nickel ... Oct 1223
Cr-Fe, α-σ transformation ... May 614
Cr-N terminal solid solution ... May 556
diffusion, β-brass ... Feb 73
embrittlement, α-β titanium ... May 502
Fe-Si, Fe-Si-Ti, γ loop ... Oct 1345
Fe-Si order-disorder ... Oct 1290
fracture, magnesium alloys ... May 589
grain growth, recrystallization ... May 504
discussion ... Oct 1413
hardenability, steels ... Aug 1008
heat treatment Ti-Fe ... May 521
high rupture strength steel ... Oct 1373
hot strip mill rolling ... Sep 1169
hydrogenated vanadium ... Oct 1213
influence boron on transformation, iron ... May 551
discussion ... Oct 1409
intermediate, creep of copper ... Feb 156
lithium solubility in aluminum ... May 553
low, zinc self-diffusion ... Feb 164
martensitic transformation Fe-Ni ... Oct 1393
mechanical properties Ti-Mo ... Oct 1388
melting point, hafnium, zirconium, titanium ... May 509
Mg-U system ... May 562
molybdenum, tensile deformation ... Feb 178
discussion ... Oct 1420
order-disorder, β brass ... Oct 604
discussion ... Oct 1409
plastic flow of titanium at low and high ... Feb 115
porosity, embrittlement in zirconium ... May 536
prolonged heating at, steel ... Aug 1091
properties, hot-rolled steel ... Oct 1269
properties, rhenium ... Aug 913
quenching dilatometer ... Feb 191
recrystallization, deformation, Si-Fe ... Aug 901
self-diffusion iron in austenite ... Oct 1336
σ nucleation, steels ... May 600
solid nickel, self-diffusion ... May 483
solid solution alloy, yielding ... Oct 1229
solute diffusion, nickel solid solutions ... May 567
strain rate, tungsten ... Feb 142
sulfur in iron ... Aug 950
tempered titanium ... Aug 961
tensile creep, aluminum ... Feb 195
discussion ... Oct 1419
tensile properties magnesium ... Aug 936
tensility, zirconium with iron ... May 486
Ti-Mo-V, structural stability ... May 491
Ti-Mo-O ... May 595
Ti-rich corner, Ti-Al-V ... Feb 211
discussion ... Oct 1420
transformation Ti-Au ... Aug 930
X-ray diffraction, Zr-H ... May 528
Temperature Dependence of Recovery Phenomena in a Cold-Rolled Aluminum Single Crystal ... Oct 1226
Tempering:
titanium alloys ... Aug 961
Tensile:
properties magnesium ... Aug 936
strength, sintering ... May 580
Tensile Characteristics of Particle-Strengthened Alloys of Zirconium with Iron ... May 486
Tensile Creep of High Purity Aluminum ... Feb 195
discussion ... Oct 1419
Tensile Deformation of Germanium Single Crystals ... Feb 111
Tensile Deformation of Molybdenum as a Function of Temperature and Strain Rate ... Feb 178
discussion ... Oct 1420
Tension:
surface, silicates ... Jan 53
Ternary alloys, see alloys.
Texture:
cube, annealing temperature ... Aug 967

recrystallization, Si-Fe ... Aug 1017
Thermodynamic Properties of Solid Fe-Au Alloys ... Feb 91
Theuerer, H. C.: *Purification of GeCl$_4$ by Extraction with HCl and Chlorine* ... May 688
Removal of Boron from Silicon by Water Vapor Treatment ... Oct 1316

Thorium:
effect on rhenium ... Aug 913
fabricating of powders ... Apr 445
Th-Cb, Th-Ti ... Feb 132
Thorium-Columbium and Thorium-Titanium Alloy Systems ... Feb 132
Tietz, T. E., and Dorn, J. E.: *Creep of Copper at Intermediate Temperatures* ... Feb 156
Tiller, W. A. et al.: *Instability of a Smooth Solid-Liquid Interface during Solidification.* Discussion ... May 617

Time:
grain growth, recrystallization ... May 504
discussion ... Oct 1413
high temperature creep, aluminum ... Oct 1385
σ nucleation, steels ... May 600
sulfur in iron ... Aug 950
Tisinai, G. F., Stanley, J. K., and Samans, C. H.: *Sigma Nucleation Times in Stainless Steels* ... May 600

Titanium:
allotropic transformations ... Feb 162
α-β, hydrogen embrittlement ... May 502
α titanium, effect on ... Oct 1235
basal plane development, electrodeposited ... Sep 1192
brittle fracture cemented TiC ... Aug 982
cooling rate ... Feb 288
diagram Ti-TiAu$_2$ ... Aug 930
Fe-Si, Fe-Si-Ti, γ loop ... Oct 1345
film boiling, preparation metallic ... Feb 284
heat treatment, mechanical properties Ti-Fe ... May 521
hot-rolled textures ... Feb 113
hydride, crystal symmetry ... July 861
hydrogen embrittlement ... Aug 907
hydrogen embrittlement ... Aug 923
hydrogen on ... Oct 1235
infiltration TiC ... Aug 977
martensitic transformation ... Aug 1036
melting point ... May 509
molybdenum alloys ... June 790
Ni-Cr-Ti-Al ... Oct 1356
orientation, Ti-Ni ... Aug 892
orientations, rolled and annealed ... Feb 80
phase transformations ... Oct 1324
phase transformations, Ti-Ni ... May 531
plastic flow in ... Feb 115
precipitation hardening, Ti-Cu ... May 512
properties Ti-Mo ... Oct 1388
retained-β phase, Ti-Ni ... May 514
solute diffusion in nickel ... May 567
structural stability, Ti-Mo-V ... May 491
system Ti-V-Mo ... Aug 959
tempered alloys ... Aug 961
Th-Cb, Th-Ti ... Feb 132
Ti-Fe, Ti-Fe-O phases ... May 572
discussion ... Oct 1417
Ti-Mo-O ... May 595
transformation, TiO ... Feb 184
Titanium-Molybdenum-Oxygen System ... May 595
Titanium-Rich Corner of the Ti-Al-V System ... Feb 211
discussion ... Oct 1420
Ti-36 Pct Al as a Base for High Temperature Alloys ... Oct 1348
Toaz, M. W., and Ripling, E. J.: *Correlation of the Tensile Properties of Pure Magnesium and Four Commercial Alloys with Their Mode of Fracturing* ... Aug 936
Tracy, G. A., Wilhelm, H. A., and Chiotti, P.: *Magnesium-Uranium System* ... May 562

Transformation:
allotropic ... Feb 162
bainite, Ni-Cr steel ... Aug 989
Bi-Mn ... May 606
discussion ... Oct 1406
creep, tensile test, aluminum ... May 497
Cr-Fe, α-σ ... May 614
Cu-Zn, martensitic ... Feb 283
diagram, Ti-TiAu$_2$ ... Aug 930
Fe-Si, Fe-Si-Ti, γ loop ... Oct 1345
Fe-Si order-disorder ... Oct 1290
hardenability, low alloy steels ... Aug 1008
influence boron on, iron ... May 551
discussion ... Oct 1409
internal friction, zirconium ... Feb 186
martensitic, Fe-Ni ... Oct 1393
martensitic, titanium ... Aug 1036
metastable phase, Fe-Ni ... May 585
nucleation of martensite ... Feb 124
phase, nickel, titanium ... May 531
structural stability, Ti-Mo-V ... May 491
Th-Cb, Th-Ti ... Feb 132
Ti-Mo alloys ... June 790
Zr-Cb diagram. Discussion ... May 619
Transformation of the TiO Phase ... Feb 184

Transition elements:
binary systems, intermediate phases ... Feb 265
discussion ... Oct 1412
Treco, R. M.: *Recrystallization and Grain Growth in Iodide Zirconium* ... Oct 1304
Trilli, L. J.: *Exposure of Shrinkage Cavity during the Reheating of Open Top Killed Steel Ingots* ... Sep 1199
Troiano, A. R., Dana, A. W., Jr., and Shortsleeve, F. J.: *Relation of Flake Formation in Steel to Hydrogen, Microstructure, and Stress.* Discussion ... Oct 1404

Tungsten:
burnt, intermediate phase, steels ... Feb 97
effect, rupture strength steel ... Oct 1373
solute diffusion in nickel ... May 567
strain rate effects ... Feb 142
Turnbull, D., and Cech, R. E.: *Heterogeneous Nucleation of the Martensite Transformation* ... Feb 124

Twinning, twins:
grain growth, aluminum ... May 517
discussion ... Oct 1413

U

Ujiiye, N., and Maddin, R.: *Structural Changes in Molybdenum Single Crystals Due to Cold Rolling* ... Oct 1298
Underwood, E. E., and Marsh, L. L., Jr.: *Effects of Alloying Elements on Plastic Deformation in Single Crystals* ... May 477

Uranium:
allotropic transformations ... Feb 162
deformation, α crystals. Discussion ... May 616
diffraction, nitrides of ... Feb 78
expansion coefficients, α uranium ... Oct 1282
intermediate phases, U-Zr ... Oct 1312
Mg-U system ... May 562
nonmetallic inclusions in ... Apr 456

V

Vacuum fusion:
hydrogen in slags ... Nov 1568
gas content, aluminum ... Dec 1672

Vanadium:
binary system of ... Feb 265
discussion ... Oct 1412
effect, rupture strength steel ... Oct 1373
mechanical properties, hydrogenated ... Oct 1213
new boride ... Oct 1325
structural stability, Ti-Mo-V ... May 491
system Ti-V-Mo ... Aug 959
Ti-rich corner, Ti-Al-V ... Feb 211
discussion ... Oct 1420
Van Vlack, L. H., and Keh, A. S.: *Microstructure of Iron-Sulfur Alloys* ... Aug 950

Vapor pressure:
determinations, germanium sulfides ... May 682
Vapor Pressure of Liquid Copper and Activities in Liquid Fe-Cu Alloys ... Aug 1086
Variations in Radiation Damage to Metals ... Oct 1362
Vaughan, D. A.: *X-Ray Diffraction Study of the Nitrides of Uranium* ... Feb 78
Vaughan, D. A., and Bridge, J. R.: *High Temperature X-Ray Diffraction Investigation of the Zr-H System* ... May 528
Vaughan, D. A., Bridge, J. R., and Schwartz, C. M.: *X-Ray Diffraction Determination of the Coefficients of Expansion of Alpha Uranium* ... Oct 1282
Vaughan, D. A., Dickerson, R. F., and Gerds, A. F.: *Metallographic Identification of Nonmetallic Inclusions in Uranium* ... Apr 456

Viscosity:
diffusion, liquid lead ... Feb 199
discussion ... Oct 1408
grain boundary, copper ... Aug 881
grain boundary, silver ... Aug 894
Vogel, F. L., Jr.: *Dislocations in Plastically Bent Germanium Crystals* ... Aug 946

Voids:
creep-rupture ... Feb 106

Volume:
α-σ transformation, Cr-Fe ... May 614

W

Wadsworth, M. E., and Cutler, I. B.: *Flocculation of Mineral Suspensions with Coprecipitated Polyelectrolytes* ... Aug 1092
Wadsworth, M. E., Fasselt, W. M., Jr., and Dresher, W. H.: *A Kinetic Study of the Leaching of Molybdenite* ... June 794
Wadsworth, M. E., Fasselt, W. M., Jr., and Ong, J. N., Jr.: *Kinetic Study of the Oxidation of Sphalerite* ... Feb 257
Walsh, J. H., Chipman, J., King, T. B. and Grant, N. J.: *Hydrogen in Steelmaking Slags* ... Nov 1568
Walton, D. et al.: *Instability of a Smooth Solid-Liquid Interface during Solidification.* Discussion ... May 617
Wang, C.-C., and Grant, N. J.: *Transformation of the TiO Phase* ... Feb 184
Ward, R. A., Hoffman, R. E., and Pikus, F. W.: *Self-Diffusion in Solid Nickel* ... May 483
Washburn, J.: *Experimental Observations Concerning the Collapse of Dislocation Loops During Annealing* ... Feb 189
Weertman, J., and Shahinian, P.: *Creep of Polycrystalline Nickel* ... Oct 1223
Wells, C., and Aaronson, H. I.: *Sympathetic Nucleation of Ferrite* ... Oct 1216
Wells, C., Busby, P. E., and Hart, D. P.: *Diffusion of Nitrogen in Iron* ... May 686
Werner, F. E., Averbach, B. L., and Cohen, M.: *Matrix Phase in Lower Bainite and Tempered Martensite* ... Oct 1484
Whittenberger, E. J., Burt, R. R., and Carney, D. J.: *Hardenability Factors for Hypereutectoid Low-Alloy Steels* ... Aug 1008
Wiener, G., and Corcoran, R.: *Deformation and Recrystallization of Silicon Iron* ... Aug 901
Wikle, K. G., Klein, J. G., and Beaver, W. W.: *Fabrication of Thorium Powders* ... Apr 445
Wilhelm, H. A., Chiotti, P., and Tracy, G. A.: *Magnesium-Uranium System* ... May 562
Wilhelm, H. A., et al.: *Thorium-Columbium and Thorium-Titanium Alloy Systems* ... Feb 132
Willey, L. A.: *Filtering Apparatus for Study of Liquid-Solid Equilibria in Alloy Systems* ... Feb 263
Winegard, W. C., and Bratina, W. J.: *Internal Friction in Zirconium* ... Feb 186
Winegard, W. C., et al.: *Instability of a Smooth Solid-Liquid Interface during Solidification.* Discussion ... May 617
Winegard, W. C., Ojala, T., and Elbaum, C.: *Nonoctahedral Slip in Aluminum* ... Oct 1344
Wood, D. L.: *Growth of External Copper Layers During the Internal Oxidation of Dilute Cu-Al Alloys in a Cu$_2$O-Cu Pack* ... Oct 1252
Wriedt, H. A., and Chipman, J.: *Oxygen in Liquid Iron-Nickel Alloys* ... Sep 1195

X

X-ray data:
β chromium ... Aug 976
diffusion, coefficients in solids ... Oct 1341
electrodeposits, patterns ... Sep 1193
grain growth, recrystallization ... May 504
discussion ... Oct 1413
transformation, TiO ... Feb 184

X-ray diffraction:
intermediate phase, burnt tungsten steel ... Feb 97
orientations, titanium ... Feb 80
vanadium boride ... Oct 1325
Zr-H ... May 528
X-Ray Diffraction Determination of the Coefficients of Expansion of Alpha Uranium ... Oct 1282
X-Ray Diffraction Study of the Nitrides of Uranium ... Feb 78

Y

Yamamoto, A., Levinson, D. W., and Rostoker, W.: *Effect of Carbon on some Properties of Ti-Mo Alloys* ... June 790
Yang, L., Derge, G., and Simnad, M. T.: *Direct Measurement of Ferrous Ion Mobility in Liquid Iron Silicate by a Radioactive Tracer Technique* ... May 690
Self-Diffusion of Iron in Molten Fe-C Alloys ... Nov 1577
Yang, L., Pound, G. M., and Derge, G.: *Mechanism of Electrical Conduction in Molten Cu S-Cu Cl and Mattes* ... June 783

Yielding:
solid solution alloy ... Oct 1229
Yurcisin, P. et al.: *Contribution to the Bi-Mn System* ... May 606
discussion ... Oct 1406

Z

Zackay, V. F., Morgan, E. R., and Shyne, J. C.: *Production of High Nitrogen Steels* ... Feb 216
Zaplatynskyj, I., and Kuczynski, G. C.: *Density Distribution in Metal Powder Compacts* ... Feb 215
Zellars, G. R., and Morris, J. P.: *Vapor Pressure of Liquid Copper and Activities in Liquid Fe-Cu Alloys* ... Aug 1086

Zinc:
aging, Al-Mg-Zn ... Oct 1378
basal plane development, electrodeposited ... Sep 1192
chemical polishing ... May 511
creep, β brass ... May 604
discussion ... Oct 1409
crystals, self-diffusion ... Feb 164
Cu-Zn system, martensitic transformation ... Feb 283
diffusion, β-brass ... Feb 73
etch pits, dislocations ... Aug 998
fracture Zn-Al ... Oct 1241
intercrystalline fracture ... May 544
discussion ... Oct 1416
plastic anisotropy ... Oct 1326
self-diffusion ... Feb 137
separation, germanium and cadmium from ... May 682
solidification Al-Zn ... Aug 972
sublimation figures ... May 515

Zirconium:
Al-Cu, Al-Zr bonding. Discussion ... May 619
allotropic transformations ... Feb 162
basal plane development, electrodeposited ... Sep 1192
intermediate phase, U-Zr ... Oct 1312
internal friction ... Feb 186
melting point ... May 509
orientation in Zr-Cb ... Feb 122
porosity, embrittlement ... May 536
recrystallization, grain growth in iodide ... Oct 1304
system Zr-N ... Feb 98
tensility, with iron ... May 486
X-ray diffraction, Zr-H ... May 528
Zr-Cb diagram. Discussion ... May 619
Zirconium-Columbium Diagram. Discussion ... May 619

Zone melting:
aluminum recrystallization ... Aug 958
mathematics. Discussion ... May 615